



FRIDAY, DECEMBER 7.

Contributions.

Fast Tunnel Work.

BOZEMAN TUNNEL, MONTANA, NOV. 22, 1883.

TO THE EDITOR OF THE RAILROAD GAZETTE:

The statement of "J. J. J." on fast tunnel work does not say whether the bench progress was as great as the heading, and while, for heading alone it is remarkable progress, it may not be the fastest work for the entire tunnel excavation. The Northern Pacific Bozeman Tunnel section is 16 ft. by 20 ft., with semi-circular arch of 8 ft. radius.

In driving the tunnel the heading is never more than 15 ft. in advance of the bench.

Work is carried on in 8-hour shifts day and night, with generally from two to three hours' delay in each 24 hours, to allow a slow ventilator to remove powder smoke.

Progress of complete tunnel section at one face has been as follows: One week, 54 ft.; July, 1883, 212 ft.; July, August and September, 1883, 619 ft. The rock is a fine-grained blue sandstone, self-supporting. Three Ingersoll drills were used, and No. 2 giant powder.

E. H. B.

Performance of a Mobile & Ohio Locomotive.

TO THE EDITOR OF THE RAILROAD GAZETTE:

The following statement, showing the service, etc., of engine No. 17 on the Mobile & Ohio Railroad, may prove interesting to your readers. The figures are taken from engine sheets, and show the service from the time the engine was built, in September, 1877, up to the time she was put in shop for general repairs in July, 1883, a period of 5 years and 9½ months.

This is one of five passenger engines built by Mr. R. H. Briggs, Master Mechanic, at the company's general repair shops at Whistler, Ala. Mr. Briggs seems well pleased with the general performance of these engines. In the expenses are included \$400 accidental repairs.

Mr. Dan Connors, engineer, has steadily run No. 17 since built, and to him much credit is due for his careful and efficient service.

During the period named the engine ran in all 225,256 miles, an average of 3,241 miles a month, or 88,993 miles a year:

	Sept. 15 to Dec. 31, 1877.	Jan. 1 to Dec. 31, 1878.	Jan. 1 to Dec. 31, 1879.	Jan. 1 to Dec. 31, 1880.	Jan. 1 to June 30, 1881.	July 1, 1881, to June 30, 1882.	July 1, 1882, to June 30, 1883.
Cost per mile run in cents:							
Repairs.....	3.8	3.7	3.3	3.0	2.0	2.6	1.7
Fuel.....	4.0	4.0	4.8	4.9	5.6	5.2	5.3
Waste, tallow, and oil.....	.6	.5	.4	.4	.4	.4	.4
Wages engine, firemen and cleaners.....	6.1	6.3	5.8	5.5	5.6	5.7	6.0
Total.....	14.5	14.5	14.3	13.8	13.6	13.9	13.4
Miles run to 1 gallon oil.....	100.76	118.03	135.47	125.78	115.07	124.73	107.26
1 ton coal.....	54.00	53.00	53.74	51.46	48.18	51.03	48.07

This engine has "double anchor" standard tires, which have been turned off twice since put on. The size of cylinders is 16 by 22 in.; the drivers are 5 ft. 6 in. in diameter. R.

Frog and Switch Rules for the 5 ft. 6 in. Gauge.

[NOTE.—The cuts which should have appeared with this letter were, through mistake, omitted last week. As the diagrams were necessary to a proper understanding of the letter, we republish it this week, with the cuts.]

TO THE EDITOR OF THE RAILROAD GAZETTE:

Replying to "Inquirer" in the *Gazette* of Oct. 19, 1883, I give the following for the case stated: 1. "For lines 20 ft. apart, curve reversing midway between, gauge 5 ft. 6 in., crossing 1 in 10." I assume that he means that the width of 20 ft. is between tracks and not between centres. Call this w and the gauge g , and this sum the distance between centres $s = g + w$ (see fig. 1). The frog number is $n = 10$. The distance from point of curvature to the reversing point, measured parallel to straight track, is D . The formula then for the latter is:

$$D = \sqrt{2gn^2s} - \frac{s^2}{4}$$

and the numerical value is

$$D = \sqrt{11 \times 100 \times 25.5} - \frac{25.5^2}{4} = 167 \text{ ft.}$$

The distance measured from the p. c. on straight track will give a point at right angles from the reversing point of centre line.

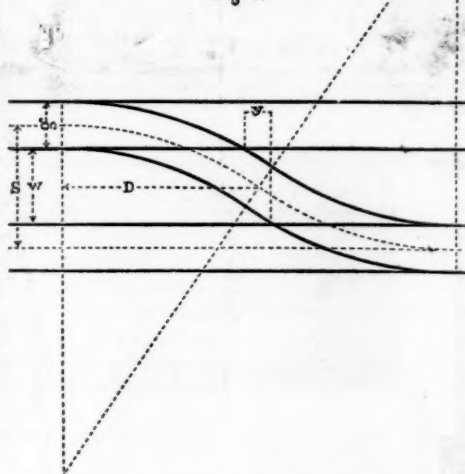
2. "Gauge 5 ft. 6 in., width between tracks 6 ft., crossing 1 in 10. What is the distance from nose to nose of crossing?" This I understand to mean the distance between the frog points in the two tracks. The distance between one of these and a point on the same rail opposite the other and at right angles thereto is thus formed. The frog distance, that is the distance of the frog from the point of curvature or heel of switch in the same straight rail in which the frog lies,

is $2gn$, that is, twice the gauge \times by the frog number, which in the case given is $11 \times 10 = 110$ ft. The curves being supposed to reverse midway as in the former case, the reversing point is found by the formula above given, and is

$$D = \sqrt{11 \times 100 \times 11.5} - \frac{11.5^2}{4} = 111.88.$$

The difference between these results is 1.88 ft., and twice this, or 3.76, is the distance y from one frog point measured on the straight rail in which it lies to a point in that rail opposite to and at right angles from the other frog. The square of this plus the square of the width between tracks is equal

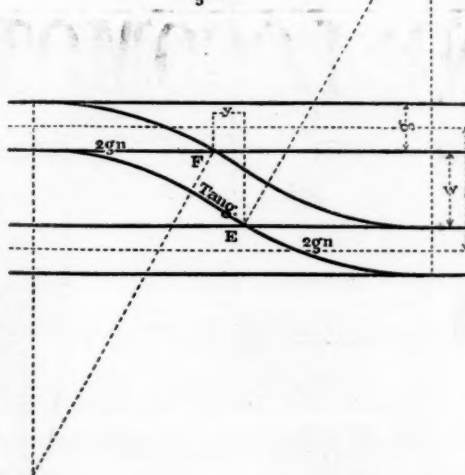
Fig. 1.



to the square of the direct distance between frog points, or $\sqrt{3.76^2 + 6^2} = \sqrt{14.1376 + 36} = 7.08$ ft., or 7 ft. 1 in., nearly.

If a tangent from the frog is interposed, as is frequently

Fig. 2.



done (see fig. 2), the distance y between frogs, measured parallel to straight rail, is found by the following formula:

$$y = \frac{n^2 - \frac{1}{4}}{n} - 2gn$$

This, reduced to its numerical value, is

$$y = \frac{99.75}{10} - 11 \times 10 = 4.71.$$

This distance plus twice the frog distance (or $4gn = 220$ ft.) gives 224.71 ft. as the distance between the points of curvature of the two curves measured parallel to straight track. The distance as found above, without the tangent, is $111.88 \times 2 = 223.76$.

I hope soon to have the demonstrations of these and other turnout formulae in form for publication.

J. A. ANDERSON.

LAMBERTVILLE, N. J., Nov. 1, 1883.

The Milwaukee & St. Paul's Grievances in the Omaha Pool.

The following is given in the *Chicago Tribune* as a statement on authority of the reasons which the Chicago, Milwaukee & St. Paul gives for withdrawing from the Iowa Trunk Lines Association—a statement which shows that there are two sides to the question, at least:

Its withdrawal from the Association had no relation to the live-stock matter. Its claim in regard to the live-stock question was simply this: That the object of the Association was, as stated in the agreement, "to distribute tonnage and revenue," and the Commissioner was charged with the duty of distributing the tonnage as to bring about such a division of new tonnage as would approximate to the percentage of revenue to which each party was entitled. By

the combination of stock shippers formed for the purpose of breaking the rates a large part of the shipments was forced over the Milwaukee & St. Paul. The Commissioner lost the power to divert, and, as is claimed, the pool became inoperative as to this business, through no fault of the Milwaukee & St. Paul. It was manifestly unjust, therefore, to compel the Milwaukee & St. Paul to pay all the earnings of this business to the other roads. The Milwaukee & St. Paul offered to pay over the net revenue, but the other roads refused to accept less than the entire revenue. Inasmuch as the Milwaukee and St. Paul was dissatisfied with the terms of the pool as respects dead freight, and proposed to avail itself of the method provided by the agreement for securing relief from certain inequitable and burdensome conditions, from which it suffers under the Association as at present organized and conducted, it preferred to pay over the excess earnings on live stock, unjustly insisted on, rather than give the slightest ground for belittling the real issues by a charge by other members of the pool that it withdrew to avoid this payment. The reasons for withdrawal are claimed to be:

First—The refusal to admit the St. Paul road into the passenger pool, as distinctly agreed when it came into the freight pool. The Burlington and the Northwestern admit that it was agreed that the St. Paul should come into the passenger pool on the same terms as the other members when it put on two trains between Council Bluffs and Chicago and had its line in complete working order. These two roads are now willing to admit the St. Paul as agreed, but the Rock Island refuses its consent. It was also agreed last summer that the lines to Council Bluffs should alternate in running a Sunday train and in waiting for the Union Pacific connection when late. In this arrangement the St. Paul road was included, although not in the pool. Within a week after this agreement had been made, the other roads refused to alternate with the St. Paul, apparently for the purpose and with the effect of needlessly subjecting it to all possible inconvenience and expense.

Another important point which led to the notice of withdrawal of the St. Paul road is that the Burlington and the Northwestern have lines west of the Missouri River, the traffic of which is controlled by them. These lines reach territory in Nebraska with the Union Pacific, which is the Iowa Association's Nebraska line. The Burlington, through the Burlington & Missouri River, and the Northwestern, through the Sioux City & Pacific (the latter to a less extent), compete with the Union Pacific in that territory and secure all the business they can to go by their lines via Plattsmouth or Blair, which is not included in the pool. Besides, as the pool at present stands, they receive at Omaha as much as the other lines of what they cannot divert from the Union Pacific by their competition, so that they may cut rates to keep traffic away from Omaha and the Association, and, besides, receive an equal share of the remainder that goes by way of Omaha. It is claimed by the St. Paul that this condition is unfair and burdensome, and should be corrected, and that what is known as the "eight-point pool," of eight junction points in Nebraska, is an admission of the correctness of its claim, although the eight-point pool is not comprehensive enough to remedy the evil. In regard to the charge of cutting rates on business from Racine, the facts are in the hands of the arbitrators, and are claimed to fully justify the action of the St. Paul road. As to the general charges that have been made, the St. Paul denies them. It has never been tried, or convicted, or fined for cutting rates, which it claims to be a position not occupied by some of its accusers.

Some of the Causes of Unsatisfactory Results in the Painting of Railway Cars.

[Paper read at the Convention of the Master Car Painters' Association in Baltimore, by A. J. Bishop, Master Car Painter of the Cleveland, Columbus, Cincinnati & Indianapolis Railway.]

In opening this subject I wish to invite a free and open discussion on any of the points taken. The first thing that a railroad usually does is to build brick or stone machine and car shops, and then put up an old shed for a paint shop. Now, the material that is used in the machine and car shops is largely wood and iron, and the expansion and contraction is so little that really these materials could be used in almost any atmosphere. But when it comes to the painter, he is given a shop generally devoid of the three greatest requirements necessary to a perfect paint shop, which are light, heat and ventilation. The materials the painter has to deal with are very sensitive and are subject to atmospheric and other changes. Paint will not dry properly in a dark shop, and will dry unevenly in a damp shop. In cases where the tracks run lengthwise of the shop, and there are windows on the sides and not skylight enough to give the same light between the cars, cracking will most surely occur on the dark side if the car is brought up in the same time, as the paint on the dark side will not be thoroughly dry. So I consider light one of the greatest essentials of a good paint shop. Heat is also a great factor in the drying of paint, and I consider steam-heating the safest method, with the coils of pipe running around the sides of the shop, as then a uniform temperature can be maintained. Where stoves are used you can never secure a uniform heat, and they frequently generate gas which will produce many devilties both in paint and varnish. This, of course, occurs more frequently in a poorly ventilated shop. Hence good ventilation is also very important, and without it no perfect job can be produced, as it is not practical to ventilate by the windows. There is only one way, and that is to obtain ventilation through the roof. There should also be ventilation under the floors of the paint shop. Where the floors are solid there is a great amount of dampness, which is very injurious to paint and varnish. I can't help but feel that the want of proper light, heat and ventilation are the prime causes of much of the trouble experienced in the paint shop, and this conviction forces itself on me more strongly on account of what is demanded from the paint shop at the present time. I refer to the material shortening of the time now given to paint a car. While many parties still use boiled oil in car painting, I cannot but think it is a great mistake, and believe it is the cause many times of the paint cracking and blistering. I deem boiled oil the correct thing for outside oil painting, but where a color is to be protected by varnish I think raw oil should be used, and very little of that, and if you desire to hasten its drying, use a good coach Japan. Referring to the causes of cracking, the simplest illustration is the mud-hole. The cracks in a mud-hole are caused by the portion underneath drying slower than the outside, hence the rule that the undercoats in painting should be made to dry quicker than the outer coats, and whenever this rule is violated cracking will surely occur. This applies to varnish as well as to color coats.

Giving the Length of Cars.

The Wabash is painting the length on the outside of freight cars, an improvement that Master Mechanic Kohler, of Toledo, is credited with originating. It will prove a great assistance to shippers and agents. —Toledo Commercial Telegram.

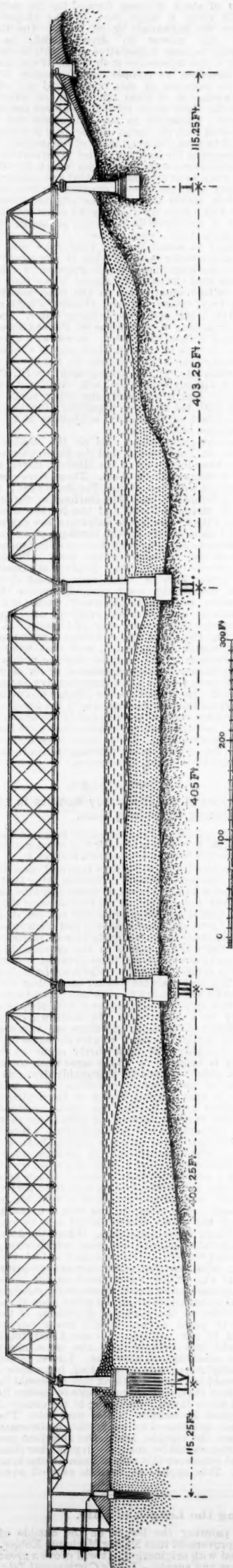


Fig. 5.

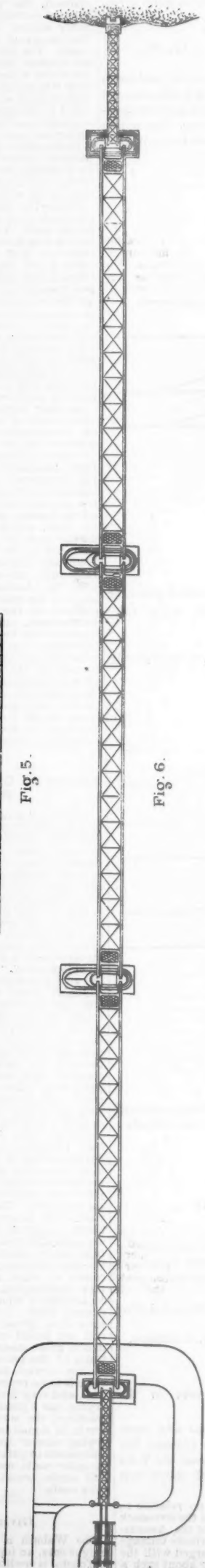
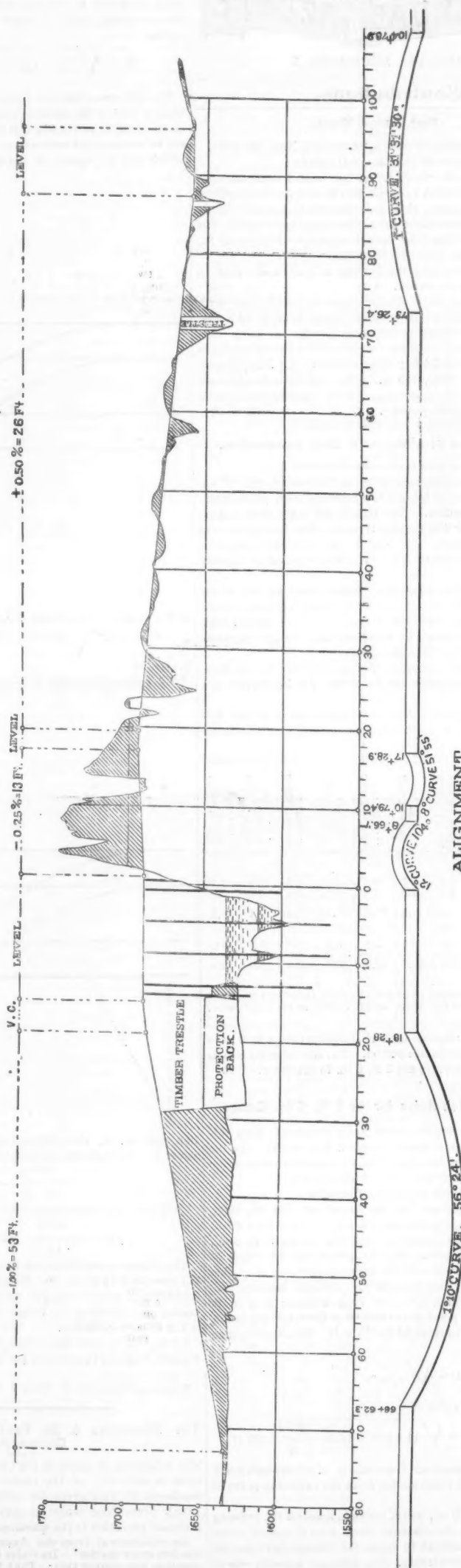


Fig. 6.



ALIGNMENT

Fig. 7.

THE BISMARCK BRIDGE OVER THE MISSOURI RIVER, NORTHERN PACIFIC RAILROAD.

The Bismarck Bridge of the Northern Pacific Railroad.

II.

(CONTINUED FROM PAGE 785.)

The bridge proper consists of three through spans, each measuring 400 ft. between centres of end pins, and two approach spans each 113 ft., as shown by the profile, fig. 5, and the perspective view, published last week. It is a high bridge, the bottom chord of the three main spans being placed 50 ft. above the level of the highest summer flood, thus giving head room to pass steamboats at all navigable stages of the river. The head room above the extreme high water of 1881 is 42 ft., but this water was an exceptional result of an ice gorge which necessarily put a stop to all navigation. Practically, the bridge gives 4 ft. more head room than many of the bridges on the lower river.

The variable channel and the high bluff on the east side were alone sufficient reasons for adopting the high bridge plan in preference to a low bridge with a draw. The violent action of the ice and the excessive height of the ice floods was, however, the controlling element in the selection of the high bridge plan. To secure safety a low bridge would have had to be placed at least 30 ft. above the highest water of navigation and the pivot pier and draw protection would have had to be constructed in an unusually

river below the protection of the dyke, and rests on a foundation of 160 piles, which were driven with a Nasmyth steam hammer.

Ground was first broken at the bridge site on May 12, 1881, when the small excavation was made for the east abutment. On the following day the excavation of the pit for the foundation of pier I was begun, though little was done here until July.

On July 15, 1881, the excavation for the foundation of pier I was resumed in earnest. Although close to the river this excavation was carried down through the hard stratified clay without the aid of a pump, the only water found in the pit being a strongly alkaline spring water, which evidently had no connection with the Missouri River, and which was easily kept out by occasional bailing. The first concrete in this foundation was put in Sept. 6, 1881, and on Oct. 1 the concrete filling was finished. The laying of masonry was begun Oct. 4, and the pier completed Nov. 20, 1881.

THE CAISSONS

on which piers II. and III. are founded are built of pine timber, and are shown by figs. 8, 9, 10 and 11, sheathed with two thicknesses of 3-in. oak plank. They measure 74 ft. long by 26 ft. wide, by 17 ft. high on the outside. The lower portion of the caisson forms a working chamber 7 ft. high, with flat roof and inclined sides. The upper portion of the caisson is a crib-work of timber filled throughout with

was obtained, the caisson having an average penetration of 10 ft. into the clay. On Nov. 13 the work of filling the working chamber was begun and on Nov. 16 the entire working chamber, air lock and shafts having been filled with concrete, the foundation was completed. On Jan. 19, 1882, the masonry of this pier was done.

The caisson for pier III. was launched Oct. 21 1881, and the concrete filling begun on the 26th. Air pressure was put on Nov. 24, using the machinery which had been relieved from work at pier II. On Dec. 16 clay was struck, and on Jan. 17, 1882, the foundation was completed. The laying of masonry was interrupted by the spring flood and was not completed until June 3, this pier being the last one finished.

The air lock used, figs. 12, 13 and 14, was of peculiar construction, designed especially for this work. It consisted of two semi-circular chambers, each having a diameter of 6 ft., separated by two spaces each 3 ft. square; one of these intermediate spaces connected with the shaft descending into the caisson and the other with the shaft which led up through the masonry to the air above; each of the semi-circular chambers had doors opening into both of the intermediate spaces; it was, in fact, a double air lock, each chamber forming an entirely independent lock by itself, but using the same shafts for access to the air locks and from the air locks to the caisson. The air lock was placed on the top of the caisson and built into the lower courses of the masonry; in this position it was absolutely protected from injury by

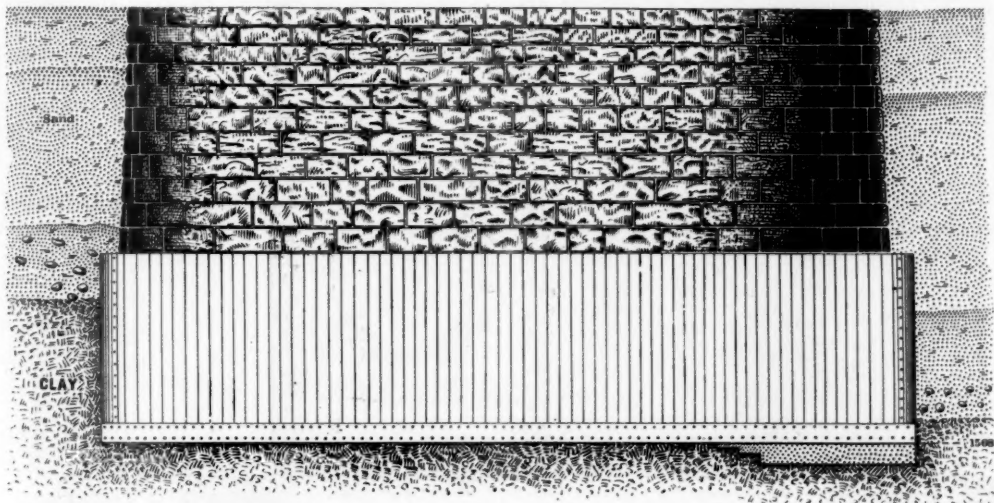


Fig. 8.

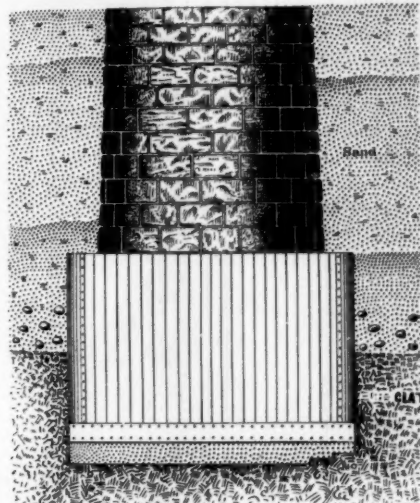


Fig. 9.

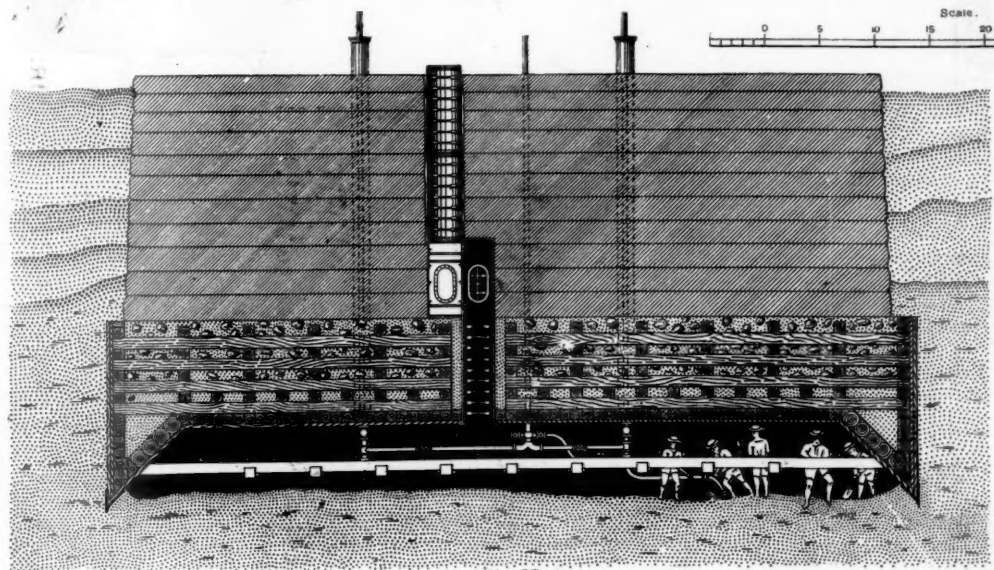


Fig. 10.

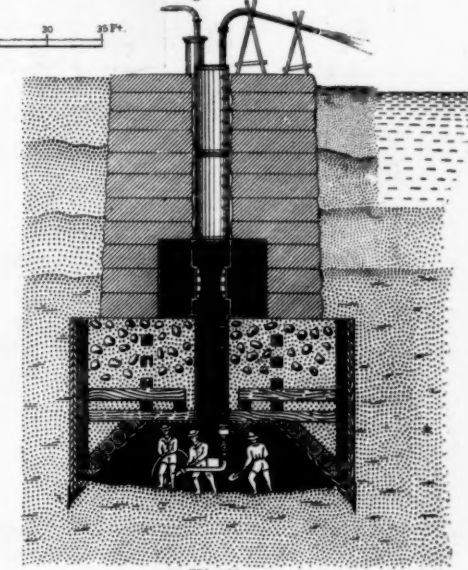


Fig. 11.

METHOD OF SINKING CAISSONS, BISMARCK BRIDGE.

solid and substantial manner. The high bridge plan seemed to be not only the most economical but really the only safe solution of the problem.

With the exception of some thin strata of soft sandstone of irregular thickness and extent, no rock is found in position in this part of Dakota. The entire country is underlain with a very hard stratified clay, the depth of which has not been ascertained. Borings proved this clay to be at least 100 ft. thick on the line of the bridge, and a hole intended for an artesian well has since been sunk within the Bismarck city limits to a depth of over 1,300 ft. in the clay. This clay, however, is in many respects more like a rock than a clay; small specimens tested for compression have sustained a weight of over 800 pounds per square inch without crushing, and when they gave way yielded like rock, and showed no tendency to bulge out at the sides. Water has little or no effect upon it. It is clay, even where the current is extremely strong, but when exposed to the dry air the clay slacks rapidly and crumbles to pieces.

The east end of the east approach span is supported by a small abutment of granite masonry founded on the natural ground of the bluff. The west end of the west approach span is supported by an iron bent resting on two Cushing cylinders which are supported by piles driven into the sand bar.

The three long spans are supported on four granite piers. Pier I, the easterly pier, rests on a concrete foundation, the base of which is 20 ft. below ordinary low water and 16 ft. below the estimated extreme low water due to ice gorges.

Piers II and III, which are in the channel of the river, are founded on pneumatic caissons sunk into the underlying clay to a depth of about 50 ft. below ordinary low water, and 10 ft. below the surface of the clay.

Pier IV is situated on the sand bar on the west side of the

Portland cement concrete. Each caisson contained 133,000 ft. board measure, of timber, and 82,000 pounds of iron, besides nearly 500 cubic yards of concrete.

The caissons were built on shore, launched and towed in position. After the caisson had been placed, the concrete above the working chamber was put in, the air locks put in position, and air pumped into the working chamber, which was thus converted into a great diving-bell, until the water was expelled. A force of men was then put to work in the working chamber, who excavated the sand, which was carried off in columns of water, and the caisson was forced down gradually by its own weight as the excavation proceeded. The masonry was laid on the roof of the caisson and continued as the sinking progressed, the top of the masonry being always kept above water. This laying of masonry on a sinking foundation was a source of serious perplexity to the masons, who were greatly troubled when they found they could no longer make use of a level to set their stone, one man making the brilliant discovery that the level must not be used, but that everything must be set with the plumb.

The caisson for pier II. was launched Aug. 6, 1881. A sand bar had formed in front of the launching ways, and it was necessary to drop the caisson a quarter of a mile down stream and tow it up against the current. This towing was performed by the transfer steamer Northern Pacific No. 1, under the direction of Capt. R. F. Woffolk, and was probably the hardest service which this boat will ever be called upon to undergo. The towing of a large and heavy caisson, drawing 5 ft. of water, taxed the boat to the utmost capacity. On Aug. 12 the caisson was correctly placed in position, and on the 20th air pressure was put on. On Sept. 1 the laying of masonry was begun, and on Sept. 29 the caisson grounded on the clay. On Nov. 9 the final depth

the mass of masonry in which it was buried, and also at a safe distance above the working chamber.

When the work was completed the shell of the lock was left below in the masonry, the doors and all fitting, being removed.

The excavation at the site of pier IV. was begun Sept. 15, 1881, but carried on slowly. Pile driving was begun Nov. 26, and completed Dec. 27. The laying of masonry was begun in January, 1882, and the pier was finished May 12. The quantities of masonry in the Bismarck Bridge are as follows:

	Masonry.	Concrete.	Total.
East Abut.	70 cu. yds.	23 cu. yds.	93 cu. yds.
Pier I	952 "	779 "	1,731 "
Pier II	2,705 "	847 "	3,552 "
Pier III	2,633 "	860 "	3,514 "
Pier IV	1,090 "	264 "	1,354 "
Totals	7,470 cu. yds.	2,773 cu. yds.	10,243 cu. yds.

There have been used in the masonry of the Bismarck Bridge more than 7,500 barrels of imported Portland cement and over 3,000 barrels of American cement. Nearly all the concrete was made with Portland cement, which was also used for the face of one of the masonry and for the backing in very cold weather.

The use of Portland cement mortar, salted whenever necessary, combined with the mildness of the winter, rendered it possible to lay masonry with little interruption through the whole season.

A large portion of the masonry of piers II. and III. was laid with a derrick boat which is shown in fig. 24. This derrick boat was designed by Mr. Thomas Saulpaugh, one of the contractors. It consisted simply of a large scow on which was erected a timber bent which was stayed in both

directions. In front of this bent was placed an ordinary boom derrick of precisely the same class used on land, which was guyed to the bent by a pair of timbers reaching from the top of the mast to each end of the cap.

ICE PROTECTION.

The Bismarck Bridge is the first bridge which has been built across that portion of the Missouri River which is subject to ice gorges, and the question has been raised as to the effect of the bridge on the movement of ice.

The piers are of unusual size, with long raking ice-breakers shod with steel. One of them, Pier III, is shown by figs. 15, 16 and 17. They are at once of such a shape as to cut readily the largest sheets of ice with whose movement the breaking up begins, and to afford the least possible ob-

the permanent bridge to the old track on the low bottom land between the river and Mandan. This approach has a grade of 1 per cent. (52.8 ft. per mile), descending westward. The eastern 1,500 feet of the west approach is built across the space reclaimed from the Missouri River by the action of the dyke, which is now a sand-bar already covered with a fair growth of willows. This part of the approach consists of a timber trestle, the maximum height of which is about 60 ft. This trestle spans the main steamboat channel of 1880, which is now a willow swamp. To protect this trestle from destruction by ice, another large embankment is now being built on the upstream side of the trestle which will be finished 6 ft. higher than the great flood of March 30, 1881. The embankment will stop the flow of ice which may be

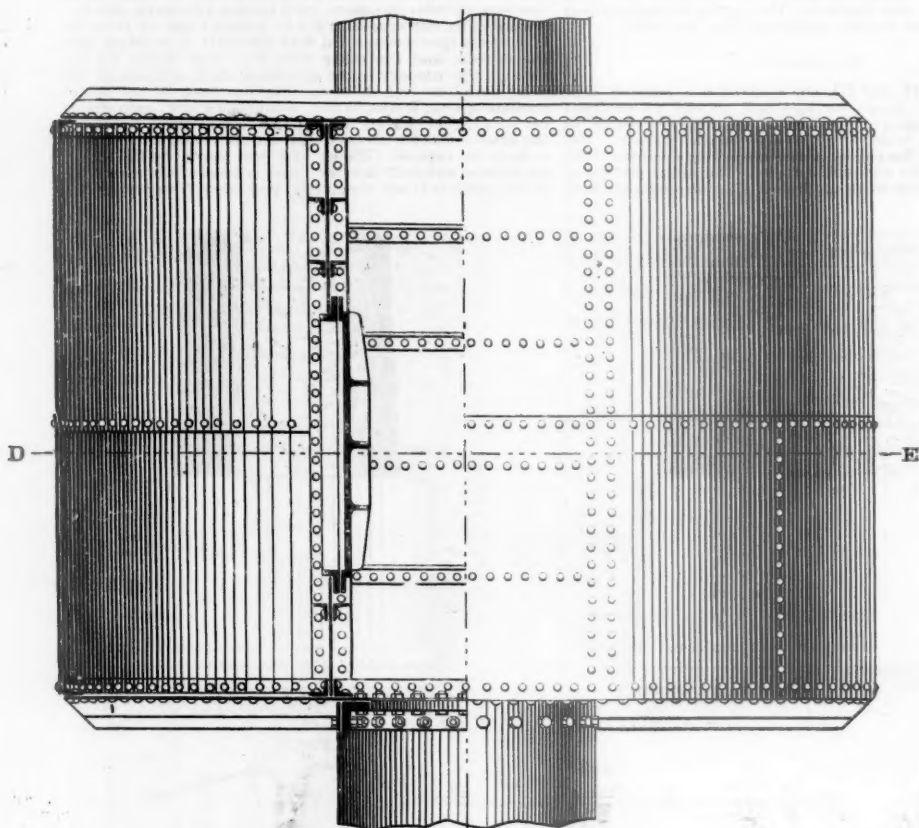
When experience has shown just what is required, an inexpensive bridge can be built, if found necessary, across this low bottom land and the track raised above the danger of overflow.

Next week we will give description and detailed illustration of superstructure.

(TO BE CONTINUED.)

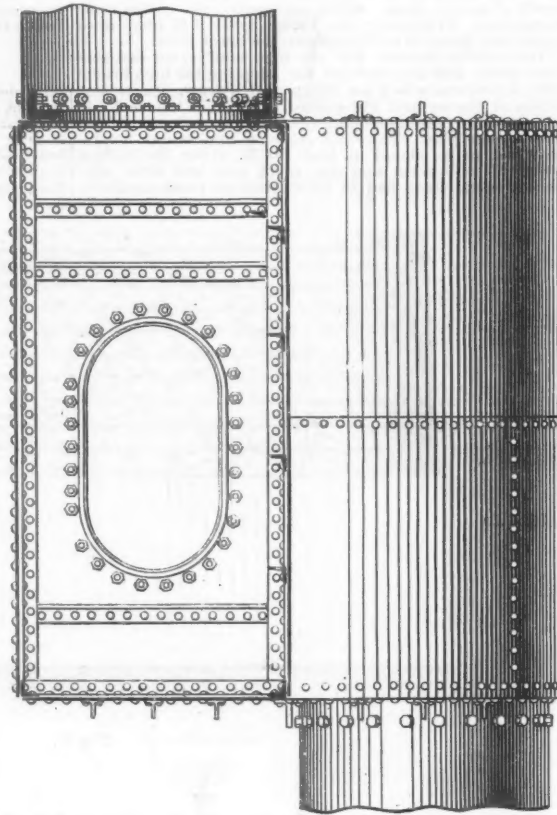
Accidents and Damages.

The old adage that truth is stranger than fiction is often verified by railroad accidents in various sections of the country. Wednesday the railroad reporter of this paper



SECTION ON AC.

Fig. 12.



SECTION ON BA

Fig. 13.

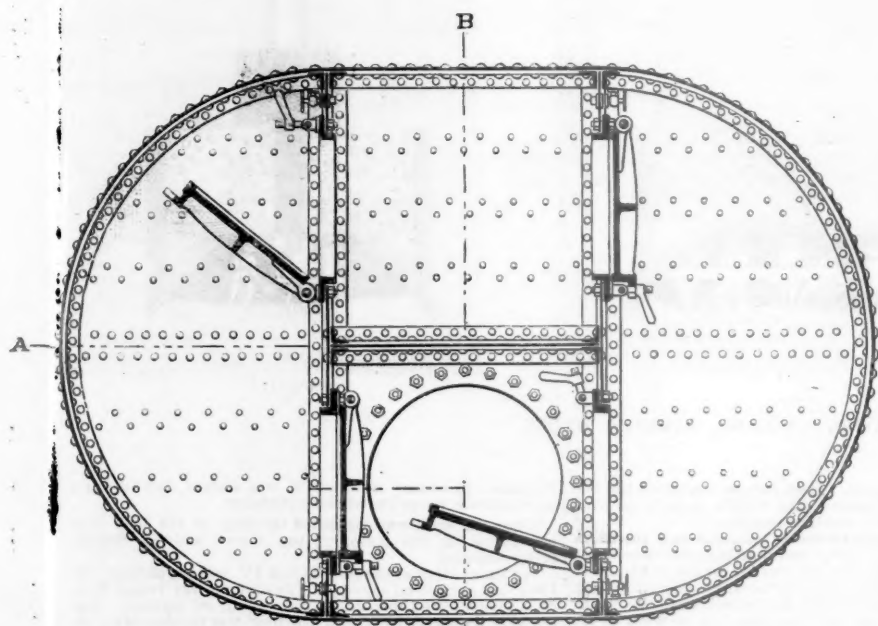
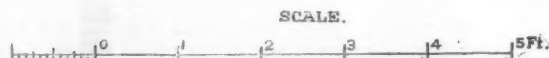


Fig. 14.

SECTION ON DE

AIR LOCK USED AT THE BISMARCK BRIDGE.



struction to the moving mass of broken ice which follows the first shove. Their stability far exceeds any force which the ice can possibly exert. As to the effects upon the movements of the ice, experience only can prove whether gorges will occur more frequently or less frequently at the bridge site than elsewhere. But since the contraction of the river bed has been accompanied by an increased depth of channel, it is not expected that gorges at the bridge will be much more frequent than elsewhere.

APPROACHES TO THE BRIDGE.

The east approach to the Bismarck Bridge leaves the old main line at Bismarck station, and is exactly 2 miles long. It differs in no essential respect from other portions of the Northern Pacific Railroad through this section of the country, except that some heavy work and sharp curvature is encountered on the face of the bluffs adjoining the bridge.

The west approach is 6,000 ft. long from the west end of

carried over the top of the dyke. It is designed ultimately to fill the timber trestle with earth, and the protection embankment is so located that it will form a portion of the final filling.

The remainder of the west approach consists of an earth embankment, having a maximum height of 43 ft., which runs out to nothing at the west end.

ICE GORGES.

Gorges are liable to occur at any point on this portion of the Missouri, and the effect of these gorges is to form a complete dam across the channel of the river. When such a dam is formed the only outlet for the discharge of the Missouri is over the frozen bottom land. The track across the low bottom land between Mandan and the river is 10 ft. below the high water of 1881, and this low bottom land is regarded as a safety-valve through which the discharge of the river can pass in case an ice gorge is formed at or near the bridge.

inquired at the Solicitor's office of the Wabash Railway Co. whether there was anything to be given to the press, when a gentleman sitting at a desk covered with law books and paper weights looked up from a document he was carefully perusing, and answered: "Yes, I have a good item for you to-day, which, although slightly musty from age, has never appeared in print. They say that lawsuits are usually dry, yet the facts they develop are sometimes so strange that they appear almost unworthy of belief. I am now preparing an answer in a suit brought by the administrator of a man who was killed in the queerest kind of a manner on the Wabash road last winter, near Kelly's Station. The facts of the case are about as follows, according to the allegations set forth in the plaintiff's petition: At Kelly's Station the Wabash Co. had occasion to stretch a telegraph wire across their track. They placed it at the usual height, where it remained for a long time undisturbed. Finally, one day a

freight train came humming along in the direction of the station, which contained a freight car a foot higher than the rest. Upon this freight car one of the tallest railroad brakemen in the United States happened to be standing, unaware that his position, owing to the combined height of himself and the car, was a perilous one. At length, when the tall car, with the tall man standing on its roof, whizzed under the wire, that obstacle was struck by the head of the astonished brakeman and torn from its insulators. The wire fell between two cars, by one of which it was dragged to a crossing, where a man named Bradley was busily engaged in trying to place a heavy log on a wagon. Somehow the wire entwined itself quickly about the man's legs and pulled him under the wheels of the train, by which he run over and killed almost instantly. The administra-

Fearing the unhappy farmer would immediately bring suit for damages the railroad company sent their agent to him, after the funerals of his wife and son had taken place, with the view of effecting a compromise. When the agent asked the grief-stricken gentleman, who was a German, what he would be willing to take in ready cash for the loss he had sustained he replied: 'Vell, I hartly can make out vat mine frau, mine son and mine duple deem vas vorth.'

"Well, what was your wife worth alone?"

"She vas a breezy goot hant on der farm and she vas anyhow \$200 worth to me."

"Well, I will pay you \$200 for your wife. What was your son worth?"

"Ab, Jake vas a fine boy. He was anyhow worth dree huntret tollars."

practice. The manner in which the tables were made up is explained by the following extracts from the report:

In the consideration of the question (of the adoption of uniform signals) your Committee arrived at the conclusion that there were certain fundamental principles governing the formation and use of signals which should never be lost sight of, viz:

First. Hand and lamp signals should be as nearly as possible like the motions a person un instructed would give to convey the same meaning.

Second. All signals should be so plain as to make it impossible to misunderstand or confuse them.

Third. As far as possible no signal should be made to convey more than one meaning.

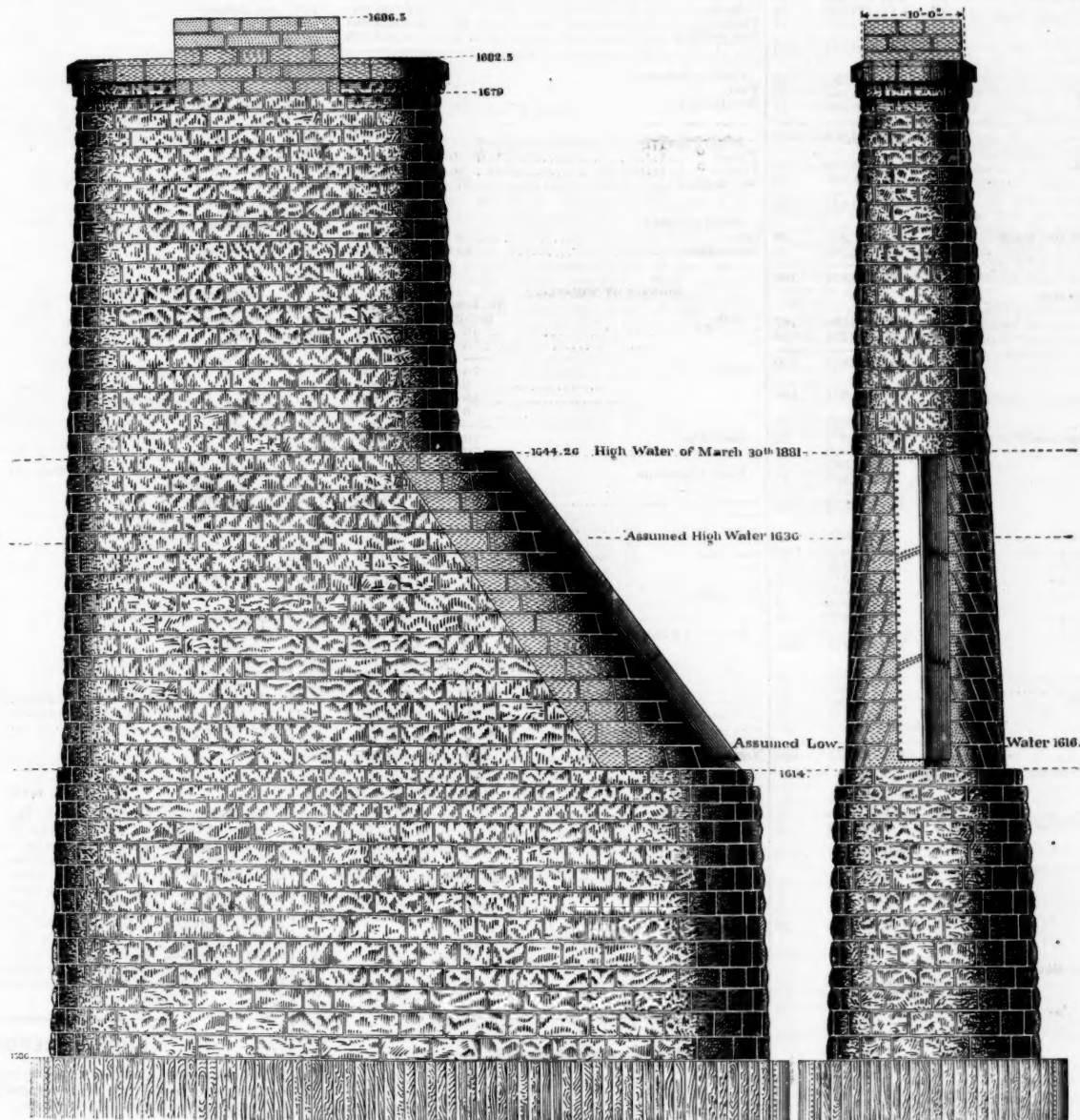


Fig. 15.

Fig. 16.

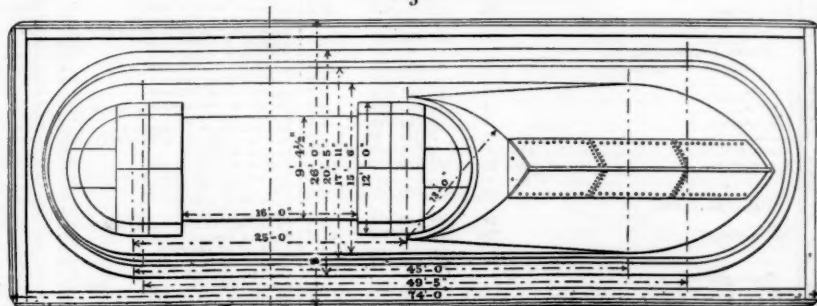


Fig. 17.

MASONRY OF PIER III, BISMARCK BRIDGE.

tor of Bradley now asks the Wabash Co. to pay \$10,000 damages to the estate of the deceased for causing his death. The case is certainly a legal curiosity."

"That case," spoke up another gentleman, who overheard the account published above, "reminds me of another railroad accident which I heard of when out West some time ago. I think the accident occurred on the Kansas Southern Railway. Anyhow, it resulted in the death of an old lady and her son and the loss of a fine double team. One day an old farmer, living several miles from the nearest railway station on the railroad, was expecting his son home from a long visit in Germany. The farmer had promised to be at the station with his spring wagon and double team to meet his son, but some unforeseen accident prevented him from redeeming his promise. In his place, however, his wife consented to undertake the journey. She arrived at the station safely, but as she was returning to the farm in company with her son a train struck the team at a railroad crossing, killing her and her son and the horses instantly, and demolishing the wagon so completely that it could scarcely be recognized."

"All right; you shall have \$300 for Jake. What do you claim for your horses?"

"Dem horses! Vell, now, it vas awful tifficult to brice dem two budies. Dey vas vorth twice so much as Jake, mine boy, and Catarina, mine frau, und der sbring wagon, all doggedder. For dem horses you must bay me twelf hundred tollar."

"The suit was compromised, but not until the claim-agent attempted to raise the damages on the loss of the farmer's wife and lower them on the horses, for the sake of decency." *St. Louis Republican.*

Uniformity in Signals.

We recently published (in the number for Nov. 2 last, page 717) the report of the Committee on Signals, as submitted to the General Time Convention. This report was accompanied by several tables containing a summary of the information which the Committee had collected, and which are of much interest as showing the diversities of present

Fourth. Signals should be exhibited in the location which will make them the most plainly visible, and for the longest time to those for whose information they are displayed.

In ascertaining the relation which the above principles bear to common practice, your Committee decided that the time and labor that would be required to prepare statistics showing the practice of all the roads in the United States would be so great as to render it impracticable; and, therefore, taking into consideration the train mileage and equipment, 25 roads were selected (except for whistle signals) representing nearly 50 per cent. of the total train mileage of the United States, 33 per cent. of the equipment, and 25 per cent. of the track mileage; and in making our recommendations we have endeavored to reconcile them with the practice, as shown by these statistics, and our own view of what is consistent with the principles we have assumed to be correct.

In considering whistle signals the Committee have been enabled to use much more extensive statistics than in the other class of signals, by reason of the very full table published with the September edition of the *Official Railway Guide* for the year 1881.

We give herewith the recapitulation of the Committee's tables, showing (for all except the whistle signals) the practice of the 25 roads selected. The tables give the various signals used, the number of roads using each signal, their total train mileage and the proportion which it bears to the total train mileage of the 25 roads. In preparing the table of whistle signals statements from 76 roads were used, instead of those from the 25 lines used for the other classes of signals:

RECAPITULATION.			
LAMP AND HAND SIGNALS.	No. of roads.	Train mileage, 1882.	Per cent.
Go Ahead.			
Raised and lowered vertically.....	13	103,450,585	49
Swung over the head.....	10	71,069,069	34
in a circle.....	2	35,100,197	17
		209,559,851	100
Back Up.			
Swung in a circle.....	14	103,450,585	49
across the track.....	6	41,441,085	20
up and down.....	5	64,608,181	31
		209,559,851	100
Stop.			
Swung across the track.....	19	168,118,766	80
up and down.....	6	41,441,085	20
		209,559,851	100
Train Parted.			
Swung in a circle across the track.....	14	142,857,591	68
No signals.....	11	66,702,260	32
		209,559,851	100
COLOR SIGNALS.			
Safety.			
White.....	19	183,254,100	87
Not given.....	6	26,305,751	13
		209,559,851	100
Danger.			
Red.....	25	209,559,851	100
Caution.			
Green.....	7	92,600,231	45
Blue (blue and white one road).....	6	40,931,075	20
Stationary red.....	3	27,675,062	13
Red with white centre.....	1	4,063,541	2
Not given.....	8	38,190,402	18
		209,559,851	100
Traffic Stop.			
Green and white combine.....	3	58,874,077	28
White.....	4	11,719,930	6
Red.....	2	23,326,733	11
Green.....	2	10,718,513	5
Any flag.....	1	2,200,530	1
Blue.....	1	8,373,070	4
Not given.....	12	99,277,422	48
		209,559,851	100
Markers.			
Green.....	3	53,874,077	26
Red.....	1	7,757,067	4
on freight trains only.....	12	79,248,663	38
Green on wild.....	1	5,605,370	3
Not given.....	9	63,674,974	30
		209,559,851	100
Train Following with Same Rights as Train Carrying the Signals.			
Green on engine.....	4	70,235,075	34
Red.....	20	130,951,135	62
and caboose.....	1	8,373,048	4
		209,559,851	100
Train following which is Irregular.			
White.....	8	53,569,048	25
Blue.....	1	7,757,067	4
Green.....	1	5,448,270	3
Not given.....	15	142,785,466	68
		209,559,851	100
Train carrying the Signals Irregular.			
White.....	6	68,560,200	33
Green.....	6	35,403,194	17
Not given.....	13	105,596,457	50
		209,559,851	100
Work Trains.			
White.....	4	65,990,070	31
Blue.....	1	6,726,824	3
Green.....	5	28,876,370	14
Not given.....	15	108,165,987	52
		209,559,851	100
Car Inspectors.			
Blue.....	5	89,474,033	42
Red.....	3	22,148,801	10
Not given.....	17	97,937,016	47
		209,559,851	100
Rear Protection.			
Red.....	24	206,253,867	99
Not given.....	1	3,305,984	1
		209,559,851	100
Telegraph Orders.			
Red.....	10	15,339,497	7
Green.....	5	32,486,315	16
Not given.....	1	24,734,039	12
		209,559,851	100
FUSEE.			
Used.....	4	73,747,737	35
Not used.....	21	135,812,114	65
		209,559,851	100
SEMAPHORE.			
Used.....	8	91,224,299	44
Not used.....	17	118,335,552	56
		209,559,851	100
Stop.			
Red.....	8	91,544,280	44
Not defined.....	17	118,015,562	56
		209,559,851	100
Caution.			
White.....	3	53,849,199	27
Not defined.....	22	153,710,652	73
		209,559,851	100
Safety.			
White.....	6	80,323,549	38
Not defined.....	10	139,236,302	62
		209,559,851	100
TORPEDOES.			
Danger.			
One.....	16	170,579,543	81
Two.....	3	18,580,263	9
Three.....	3	11,099,697	5
Not used.....	3	8,700,346	4
		209,559,851	100
Caution.			
One.....	6	38,091,950	18
Two.....	7	85,932,861	41
Not used.....	12	85,535,040	41
		209,559,851	100

SIGNALS BY BELL CORD.			
Start.			
One.....	11	106,168,288	51
Two.....	11	87,344,855	42
Not defined.....	3	16,146,708	7
		209,559,851	100
Stop immediately.			
One.....	12	111,167,049	54
Two.....	12	88,374,065	42
Three.....	1	7,757,067	4
		209,559,851	100
Stop at next station.			
One.....	1	2,200,530	1
Three.....	4	28,950,077	14
Not defined.....	15	112,349,284	54
		209,559,851	100
Back.			
Three.....	23	204,623,883	98
Not defined.....	2	4,935,968	2
		209,559,851	100
Call in flagman.			
Two.....	4	65,990,070	31
Not defined.....	21	143,569,781	69
		209,559,851	100
Reduce speed.			
Three.....	2	13,750,826	7
Four.....	6	70,530,990	34
Not defined.....	17	125,278,035	59
		209,559,851	100
Train parted.			
One.....	6	78,683,085	38
Not defined.....	19	130,876,765	62
		209,559,851	100
SIGNALS BY WHISTLE.			
No. roads using.	Train mileage, 1882.	Per cent.	
3	314,355,447	93.0	
3	23,140,820	7.0	
Start.			
76	337,496,167	100.0	
2	23,140,820	7.0	
68	245,461,967	73.0	
6	68,893,380	20.0	
Back Up.			
76	337,496,167	100.0	
76	337,496,167	100.0	
Road Crossings.			
11	33,498,116	10.0	
8	40,730,183	12.0	
10	44,464,793	13.0	
1	3,705,294	1.0	
2	794,065	0.2	
10	94,437,366	28.0	
5	40,457,585	11.0	
3	14,065,423	4.0	
20	65,373,420	20.8	
	337,496,167	100.0	
Send out Flagman.			
2	2,845,082	0.7	
2	14,343,130	3.0	
6	59,254,724	17.0	
2	7,795,317	2.0	
2	15,233,133	5.0	
1	2,480,090	0.7	
1	16,185,034	5.0	
1	2,055,483	0.6	
50	216,824,185	66.0	
	337,496,167	100.0	
Call in Flagman.			
76	337,496,167	100.0	
40	167,045,638	51.0	
5	7,339,577	2.0	
4	25,858,410	7.0	
1	666,018	0.2	
12	99,300,971	29.0	
3	9,486,332	3.0	
1	2,406,973	0.7	
4	25,347,248	7.0	
	337,496,167	100.0	
Call for Switchman.			
21	118,612,878	35.0	
2	3,613,222	1.0	
2	1,155,719	0.3	
2	3,292,509	0.9	
1	2,425,517	0.7	
48	208,092,172	62.4	
	337,496,167	100.0	
Calling attention to signals carried.			
0	80,047,727	23.3	
1	11,481,296	3.0	
3	19,146,732	5.6	
18	51,082,410	15.0	
7	21,437,328	6.3	
2	18,114,203	5.3	
3	3,821,665	1.0	
33	132,364,806	40.8	
	337,496,167	100.0	
Answer to previous.			
7	62,955,769	18.6	
2	3,567,577	1.0	
1	16,185,034	4.7	
1	11,481,296	3.0	
2	5,724,216	1.7	
1	3,374,180	1.0	
2	2,728,898	0.8	
60	231,479,197	68.2	
	337,496,167	100.0	
Alarm for cattle.			
38	168,150,611	49.0	
38	169,345,550	51.0	
	337,496,167	100.0	
Train parted.			
1	3,305,984	0.9	
2	21,599,271	6.4	
1	2,269,530	0.6	
5	28,328,070	8.0	
1	1,980,446	0.5	
1	8,373,046	2.0	
4	24,272,551	7.1	
3	53,874,777	15.9	
58	193,501,692	58.0	
	337,496,167	100.0	
Answer to any signal.			
1	13,541,880	4.0	
4	28,368,867	8.0	
1	337,828	0.1	
1	1,305,285	0.4	
7	53,793,180	15.9	
1	3,511,161	1.0	
61	236,637,947	70.6	
	337,496,167	100.0	
Railroad crossings.			
3	4,245,084	1.0	
2	3,817,963	1.0	
71	329,433,120	98.0	
	337,496,167	100.0	
Response to engine gong.			
7	8,373,046	2.4	
14	76,728,101	22.4	
1	342,826	0.1	
1	1,096,967	0.3	
50	250,985,225	64.5	
	337,496,167	100.0	

Fuel.	2	760,233	0.2
.....	3	12,018,150	3.2
.....	2	8,872,786	2.6
Not defined	69	315,845,008	94.0
	76	337,496,167	100.0
Call for signals.	1	342,828	0.1
.....	7	64,055,809	18.8
.....	1	12,115,993	3.5
.....	1	6,726,824	1.9
Not defined.	66	254,254,853	75.7
	76	337,496,167	100.0
Answer to Flag.	1	6,626,661	1.9
.....	4	28,368,867	8.4
.....	1	27,775,064	8.2
Not defined.	70	274,724,075	81.5
	76	337,496,167	100.0
Bridge Alarm.	2	10,576,473	3.1
.....	2	4,146,544	1.1
.....	1	2,381,070	0.7
Not defined.	71	320,393,080	95.1
	76	337,496,167	100.0
Fire Alarm.	1	1,349,855	0.3
.....	1	1,686,903	0.4
Not defined	74	334,478,469	99.3
	76	337,496,167	100.0
Signal of Distress.	2	13,081,296	4.0
Not defined	74	323,814,871	96.0
	76	337,496,167	100.0
Approaching Stations.	41	234,007,831	69.8
..... 5 sec.	1	443,783	0.1
..... 8 "	1	568,976	0.1
.....	1	1,096,967	0.3
Not defined	32	100,480,711	29.7
	76	337,496,167	100.0
Call in Head Brakeman.	1	5,414,237	1.6
Not given	75	332,081,930	98.4
	76	337,496,167	100.0
Response to Gong Not to Stop at Next Station.	1	6,753,310	2.0
Not given	75	330,742,857	98.0
	76	337,496,167	100.0
Reduce Speed.	2	3,292,246	0.9
Not given	74	334,293,921	99.1
	76	337,496,167	100.0
Will make Flying Switch.	1	1,686,903	0.4
.....	1	2,381,070	0.7
Not given	74	333,448,194	98.9
	76	337,496,167	100.0
Call to see if Brakemen are in Place.	1	666,018	0.2
Not given	75	336,730,149	99.8
	76	337,496,167	100.0

Hard to Kill.

Last Saturday evening, as the train for Charlotte left Raleigh in charge of Capt. George Waitt, the engine encountered an obstruction on the track near Carey in the form of a negro man. Engineer Bill Blakeney did not see the darkey till within 20 feet of him, and when the engine struck him he went up in the air and came down some distance in front. It was thought that the corpse ought to be picked up and laid in the baggage car, and the train was quickly stopped. The trainmen got out to hunt for the body, but found the darkey standing by a cedar bush, scratching his head, just a little bewildered, but solid as a dollar. He was left to continue his tramp and the train proceeded on its way.—Charlotte (N. C.) Observer, Nov. 20.

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Del., Lac. & W. Leased Lines.....	497	Portland & Rochester.....	100
De Kalines & Fort Dodge.....	362	Portland & Augusta.....	723
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Hannibal & St. Joseph	163	Southern Pacific	598
Hanover Junc. Han. & Gettysb.	385	Sullivan County	457
Hartford & Conn. Western	7	Sussex	407
Housatonic	196	Terre Haute & Indianapolis	362
Houston & Texas Central	121	Texas & Pacific	231
Huntington & Broad Top	121	Toledo, Ann Arbor & Gd. Trk.	510
Illinois Central	167, 180, 182	Union Pacific	164
Indiana, Bloom. & Western	403	Utah Central	246
Indianapolis & Vincennes	446	Valley, of Ohio	280
International & Great No.	231	Vermont Valley	427
Jeffersonville, Madison & Ind.	405	Vicksburg & Meridian	539
Kan. City, Ft. Scott & Gulf.	707	Virginia Midland	100
Kentucky Central	244	Wabash, St. Louis & Pac.	167, 180
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Eastern.

This company's report is for the year ending Sept. 30, 1883, at the close of which the road worked was as follows:

Boston to N. H. line, owned	41.45
Eastern in N. H., leased	16.08
Portland, Saco & Portsmouth, leased	50.76
Total main line, Boston to Portland	108.29
Portsmouth, Great Falls & Conway, leased	72.36
Eleven branches owned	76.87
Four branches leased	26.93
Total	284.95

The only change reported in an increase of 1.49 miles in the length of the Portsmouth, Great Falls & Conway Branch. There are 33.15 miles of second track and 95.39 miles of sidings, making 418.49 miles of track in all, of which 187.09 miles are laid with steel.

The equipment consists of 106 locomotives and 2 spare tenders; 171 passenger, 1 parlor and 44 baggage, mail and express cars; 2 refrigerator, 2 milk, 1,126 box, 999 flat and 32 caboose cars; 1 directors' car and 128 road or service cars.

The general balance sheet, condensed, is as follows:

Stock	\$4,967,600.00
Funded debt	13,627,320.62
Mortgage notes	684,300.00
Notes payable and current balances	660,158.60
Total	\$10,960,379.22
Road and equipment	\$8,877,332.28
Real estate, stocks and bonds	1,356,780.27
Materials	319,656.08
Bills, accounts and balances	274,415.24
Cash	248,530.63
Profit and loss	8,892,664.72
Total	\$10,960,379.22

There were no changes of importance during the year.

The funded debt consists of \$194,400 Essex bonds; \$10,362,000 gold certificates of indebtedness; \$3,070,274.85 (\$630,000) sterling certificates of indebtedness and \$645.77 scrip. The interest on this debt is now 6 per cent.

The large debit balance of profit and loss represents the doubtful assets, stocks, etc., the depreciation of property and other items charged off at the time of the readjustment of the company's affairs. The stocks of leased lines owned are included in this account.

The traffic for the year was as follows:

Train-miles:	1882-83.	1881-82.	Inc. or Dec.	P. c.
Passenger	1,344,570	1,290,988	I.	47.582
Freight	729,172	718,809	I.	16.363
Service and switch	598,227	557,396	I.	40.831
Total	2,671,969	2,567,193	I.	98.776
Passenger car miles	5,858,490	5,628,735	I.	229.755
Freight car miles	14,225,511	13,423,603	I.	731.908
Passengers carried	7,257,296	6,604,087	I.	653.219
Passenger-miles	100,003,695	93,877,712	I.	6,131.893
Tons freight carried	1,398,332	1,257,699	I.	110.633
Ton-miles	75,641,236	68,479,129	I.	7,162.097
Av. train load:				
Passengers, No.	74	72	I.	2.8
Freight, tons	104	95	I.	9.5
Av. rate:				
Per passenger-mile	1.822 cts.	1.881 cts.	D.	0.059 cts.
Per ton-mile	1.923 "	2.035 "	D.	0.112 "

The average earnings per revenue train-mile were 1.73; expenses, \$1.12; net earnings, \$0.61, against \$0.55 in the preceding year.

Of the passenger-miles 16.1 per cent., and of the ton-miles 37.5 per cent. were of business and from other roads. The average passenger journey was 13.78 miles; the average freight haul, 55.28 miles.

The rate per passenger-mile for season-ticket passengers was 0.792 cent; for other local passengers 2.349 cents, and for foreign passengers 1.478 cents. The rate per ton-mile was 2.407 cents on local freight and 1.116 cents on foreign freight.

The earnings for the year were as follows:

	1882-83.	1881-82.	Inc. or Dec.	P. c.
Passenger dep't.	\$1,959,570	\$1,903,857	I.	\$55,719 2.9
Freight dep't.	1,454,878	1,393,696	I.	61,182 4.4
Miscellaneous	170,052	105,525	I.	64,527 61.2
Total	\$3,584,500	\$3,403,078	I.	\$181,422 5.3
Expenses	2,910,830	2,292,968	I.	17,862 0.8
Net earnings	\$1,273,676	\$1,110,110	I.	\$163,566 14.7
Gross earn. per mile	12.579	12.005	I.	574 4.8
Net	4.470	3.916	I.	554 14.2
Per cent. of exps.	64.47	67.38	D.	2.91

Taxes are included in expenses; they amounted to \$71,110 last year.

Included in expenses are the cost of all renewals, the amounts paid for new equipment and for reduction of car trust. The renewals of track included 1,324 tons steel rails, 409 tons iron rails and 125,982 new ties.

Both gross and net earnings are the largest ever reported for this road. The increase in gross earnings has been continuous since 1877; the gain in net earnings has been steady since 1876, with the exception of 1882, when there was a very small decrease from 1881.

The income and profit and loss accounts were as follows:

Net earnings for the year	\$1,273,675.60
Interest paid	\$857,686.16
Rentals	218,330.00
	1,070,016.16
Surplus for the year	\$197,659.44
Old accounts transferred	417.53
Total	\$198,076.97
Old claims and accounts	3,088.73
Profit and loss balance, Oct. 1, 1882	9,087,652.96
	9,090,741.69
Debit balance Sept. 30, 1883	\$8,892,664.72

Expenditures from surplus earnings for land, construction and new signals were \$7,331.60, leaving the actual cash surplus \$130,327.84 for the year.

The President's report says: "Greatly needed improve-

ments have been made in the stations and station grounds; and it is believed that the train service has been generally satisfactory to the patrons of the road.

"No serious accidents have occurred, and the officers and employes have worked together, loyally and earnestly, to bring good results from the business of the year.

"Our interest account is now at its highest point; and we are glad to chronicle that it has been met without difficulty, notwithstanding extraordinary expenditures in maintaining the value of the property.

"The experience of the year has demonstrated the fact that the road can easily meet its fixed charges from its present revenue.

"Negotiations between this company and the Boston & Maine Railroad Co. for a lease of the property of this road to the Boston & Maine resulted in an agreement thereof, which has been ratified by the stockholders of both corporations. Pending a suit which has been brought to test certain questions arising therefrom, this lease has not been executed. Meanwhile the road continues to be operated as before."

Boston & Maine.

This company owns a line from Boston to Portland, Me., 115.50 miles, with four short branches, 11 miles in all, making 126.50 miles owned. It leases the Newburyport road, 26.95 miles; the Danvers road, 9.26 miles; the Lowell & Andover, 8.50 miles; the West Amesbury Branch, 4.50 miles; the Kennebunkport road, 4.50 miles, and the Dover & Winnisseege, 29 miles, making 82.74 miles leased, and 209.24 miles owned and leased. The Methuen Branch (owned), 3.75 miles, is leased to the Manchester & Lawrence Company, leaving 205.49 miles worked. Most of the leased lines are practically owned by the company. The 50th annual report is for the year ending Sept. 30 last.

The only addition to the road worked last year was the Kennebunkport road, leased as noted below.

The equipment consists of 89 locomotives; 145 passenger, 3 parlor and 35 baggage and mail cars; 1,904 merchandise cars and 231 gravel and other cars.

The general account, condensed, is as follows:

Stock (received from sale of 70,000 shares)	\$6,921,274.52
Funded debt	3,500,000.00
Notes payable	500,000.00
Accounts and balances	226,260.72
Profit and loss	1,636,202.14
Total	\$12,783,737.38
Road and equipment	\$10,820,980.26
Leased lines, improvements, etc.	1,187,290.73
Materials	281,894.96
Bills and accounts receivable	224,421.46
Cash	269,160.97
Total	12,783,737.38

The funded debt consists of 7 per cent. plain bonds, of which \$1,500,000 will be due in 1893 and \$2,000,000 in 1894.

The traffic for the year was as follows:

Train miles:	1882-83.	1881-82.	Inc. or Dec.	P. c.
Passenger	1,176,851	1,120,107	I.	56,744 5.1
Freight	529,011	511,283	I.	17,728 3.5
Other	322,873	314,299	I.	8,574 2.7
Total	2,028,735	1,945,599	I.	83,136 4.3
Passengers car-				
ried	6,498,736	5,984,000	I.	504,736 8.4
Freight car miles	85,216,481	81,641,541	I.	3,574,940 4.4
Tons freight car-				
ried	946,906	904,968	I.	41,940 4.6
Ton-miles	48,736,777	44,892,394	I.	3,854,383 8.6
Av. train load:				
Passengers, No.	72	73	D.	1.4
Freight, tons	92	88	I.	4.5

The average rate per passenger-mile last year was 1.97 cents, and the average rate per ton-mile was 2.24 cents.

The earnings for the year were as follows:

	1882-83.	1881-82.	Inc. or Dec.	P. c.
Passengers	\$1,670,603	\$1,593,117	I.	\$77,486 5.4
Freight	1,134,872	1,079,425	I.	55,447 5.2
Mail and express	101,469	95,784	I.	5,685 5.9
Rents, etc.	75,486	82,404	D.	6,918 8.4
Total	\$2,981,430	\$2,850,730	I.	\$130,700 4.9
Expenses	1,964,384	1,861,281	I.	103,103 5.6
Net earnings	\$1,027,046	\$989,449	I.	\$37,597 3.8
Gross earn. per mile	14.311	14.83	D.	28 0.2
Net	4.879	4.923	D.	44 0.9
Per cent. of expenses	65.67	65.29	I.	0.38

Expenses include the taxes paid, which amounted to \$115,264 last year. They also include all renewals of track and equipment.

The income account was as follows:

Net earnings as above	\$1,027,046.27
Improvement account	\$106,376.73
Rental of leased lines	88,298.87
Interest on bonds	245,000.00
Dividends, 8 per cent.	560,000.00
	999,675.60

Balance, surplus for the year \$27,372.67 |

This surplus has been placed to the credit of improvement account, for extension of second track, etc.

During the year 2,355 tons of steel rails and 102,063 new ties were used in renewals, and 966 tons of steel rails and 26,309 ties were used in laying second track.

Improvements during the year included the construction of 5 miles of second track on the main line and 5½ miles on the Lowell & Andover Branch; filling in the trestle over the Scarborough marshes; a new freight track in Lowell; over two miles of new sidings; four iron bridges and one wooden bridge to replace old ones, and a number of new buildings.

The equipment was increased by 6 locomotives, 1 combination and 13 passenger cars and 175 freight cars, bought or built in the shops.

The old machine shops on Charles River were burned down, causing a loss of \$80,000, half covered by insurance. Temporary buildings have been put up, but it is intended to build new shops in a more convenient location.

The report says: "A lease of the Eastern Railroad to this company upon terms agreed upon by your directors and those of the Eastern Railroad Co. was ratified by both corporations at meetings held on March 28, 1883, to take effect when duly authorized by the laws of New Hampshire. Such authority was obtained at the session of the Legislature of that state held last summer.

"Meantime on May 1, one of the trustees appointed under the mortgage of the Eastern Railroad Co. presented to the Supreme Judicial Court of Massachusetts a bill in equity praying the Court to enjoin that company from executing the lease, substantially on the ground that it does not provide for the sinking fund established under that mortgage for the benefit of the holders of the certificates of indebtedness secured by it. The remaining trustees have refused to join in the bill as plaintiffs.

"The existence of this suit has hitherto delayed the execution of the lease, and the suit is still pending.

"The Boston & Maine Railroad is not a party to it, and at a preliminary hearing the Court has decided that it need

not be summoned in as such, but has directed notice of the pendency of the suit to issue to all the holders of the certificates of indebtedness of the Eastern Railroad. The term of this notice will expire in January next. There appears to be no reason why the argument of all questions mooted in the case should not be had before the full Court in the coming March.

"During the past year a road has been built from Kennebunk to Kennebunkport, a distance of 4½ miles, under a lease to us for 99 years, from May 15, 1883, at 4½ per cent. on a cost of \$65,000.

"The road was opened to the public June 18, 1883, and has done a good business the past summer. It has opened up a fine sea-coast, and will, we think, in time much increase our pleasure travel."

New York & New England.

This company works a main line from Boston to the Hudson River opposite Newburg, N. Y., 228.56 miles, of which 11.02 miles are leased from the Newburg, Dutchess & Connecticut Co. It owns branches from Providence, R. I., to Willimantic, Conn., 58.50 miles; to Woonsocket, 28.41 miles, and five shorter branches, 22.02 miles in all. It leases branches from Franklin, Mass., to Valley Falls, R. I., 13.60 miles; Vernon, Conn., to Rockville, 4.40 miles, and East Hartford, Conn., to Springfield, Mass., with branch, 36.90 miles. This is a total of 322.47 miles owned and 65.62 leased, 391.99 miles in all. It also leases the Norwich & Worcester road, 66.40 miles, but its earnings are not included in the report, which is for the year ending Sept. 30.

During the year 1.25 miles of the Dedham Branch were taken up, and the section of the Woonsocket Division from Brookline to Cook street, Newton, 5.30 miles, was sold to the Boston & Albany.

The equipment consists of 145 locomotives; 144 passenger, 1 parlor and 6 baggage, mail and express cars; 1,479 box, 3 stock, 448 flat, 1,416 coal, 340 dump and 77 caboose cars; 1 directors' car and 16 miscellaneous cars. Of these 13 passenger, 6 baggage, 300 box, 1,172 coal and 39 caboose cars are held under car trusts.

The general account is as follows, condensed:

Stock issued	\$17,137,000.00
Bonded bonds convertible into stock	2,863,000.00
Total stock	\$20,000,000.00
Funded debt	12,381,000.00
Indebtedness on land purchases	1,411,532.00
Notes, accounts and balances	1,862,332.62
Profit and loss	169,402.58
Total	\$33,824,267.20
Road and equipment	\$31,146,032.35
Other property	226,378.55
Materials	487,076.44
Accounts and balances	604,490.62
Due from second-mortgage trustees for construction	240,500.64
Company's stock held	46,000.00
Cash	73,759.60
Total	\$33,824,267.20

The funded debt consists of \$6,000,000 first-mortgage 7 per cent. bonds, \$4,000,000 first-mortgage 6 per cent. bonds and \$2,381,000 second-mortgage 6 per cent. bonds.

The land indebtedness is secured by liens on the real estate and consists of \$125,000 note due for purchase of Drake's wharf; \$300,000 due the Boston & Albany Co. for South Boston flats land, and \$986,532 due the state of Massachusetts for the South Boston flats purchase.

Other property as given above includes the transfer steamer "Wm. T. Hart" and one-half interest in the New England Transfer Co.

The traffic for the year was as follows:

Train miles:	1882-83.	1881-82.	Inc. or Dec.	P. c.
Passenger	1,277,075	1,297,838	D.	20,763 1.6
Freight	1,279,037	926,074	I.	352,963 38.2
Service	82,932	55,529	I.	27,403 49.3
Total	2,639,044	2,279,441	I.	359,603 15.8
Locomotive miles	3,616,041	2,971,954	I.	644,087 21.6
Pass. car-miles	4,542,129	4,746,532	D.	204,403 4.3
Freight car-miles	22,992,573	16,894,922	I.	6,097,651 36.1
Passengers carried	4,470,331	4,596,082	D.	125,751 1.5
Passenger-miles	53,815,074	55,853,672	D.	2,038,598 3.7
Tons freight carried	1,801,260	1,522,374	I.	278,886 18.3
Ton-miles	153,213,010	103,668,653	I.	49,544,357 48.0

Av. train load:

Passengers, No. 42 43 D. 1 2.3

Freight, tons 190 | 112 | I. | 8 7.1 |

The ton-miles given above are of paying freight only; during the year 156,000 tons of company's freight and materials were carried 10,852,365 miles.

The average passenger journey was 12.03 miles; the average freight haul 55

RAILROAD EARNINGS IN OCTOBER.

NAME OF ROAD.	MILEAGE.					EARNINGS.					EARNINGS PER MILE.				
	1883.	1882.	Inc.	Dec.	P. c.	1883.	1882.	Inc.	Dec.	P. c.	1883.	1882.	Inc.	Dec.	P. c.
EASTERN ROADS.															
Eastern.....	284	284				\$ 359,178	\$ 322,700	16,478		5.1	\$ 1,194	\$ 1,126	\$ 68		5.1
Grand Trunk.....	2,313	2,321		8	0.3	1,516,209	1,463,662	52,547		3.6	656	631	25		3.9
Long Island.....	354	354				202,366	195,495	6,871		3.5	572	552	20		3.5
N. Y. & N. England.....	390	390				346,240	297,090	49,150		16.6	888	744	124		16.6
Northern Central.....	322	322				590,748	527,714	63,034		12.0	1,835	1,629	196		12.0
Pennsylvania.....	2,076	1,980	96		4.5	4,875,347	4,600,053	275,294		4.6	2,355	2,353	2		0.1
Phila. & Reading.....	1,560	1,000	560		56.0	3,531,436	2,229,513	1,301,923		58.4	2,284	1,220	1,064		86.4
Rochester & Pitts.....	294	125	169		135.2	84,417	28,866	55,551		192.2	287	231	56		24.5
West Jersey.....	188	177	11		6.2	88,331	83,194	5,137		6.1	469	470	-1		0.2
Total, 9 roads.....	7,784	6,992	830		11.8	11,574,172	9,808,229	1,765,943		18.0	1,487	1,409	78		5.5
Total inc. or dec.....			822					1,765,943					78		
SOUTHERN ROADS.															
Ala. Gt. Southern.....	290	290				112,147	58,714	23,433		26.3	387	306	81		26.3
Ches. & Ohio.....	517	517				362,767	351,314	11,453		3.3	702	680	22		3.3
Chas. & Lex. & B. S.....	130	130				68,091	240,384	20,293		8.4	775	715	61		8.4
Cin., N. O. & Tex. P.....	1,098	901	197		21.9	453,912	380,216	67,696		17.5	413	429	-16		3.7
Mem. & Charleston.....	292	292				145,314	120,763	24,551		20.3	408	414	-6		20.3
Fla. Central & Western.....	234	234				42,339	37,700	4,639		12.3	181	161	20		12.3
Fla. Transit & Pen.....	243	243				47,186	36,385	10,801		30.0	194	150	44		30.0
Ill. Central, Southern Div.....	578	578				495,741	432,600	63,141		14.6	858	748	110		14.6
Kentucky Central.....	188	188				80,687	67,126	13,561		20.2	429	447	-18		4.0
Louisville & Nash.....	2,065	2,028	37		1.8	1,477,800	1,215,932	261,868		21.5	715	600	115		19.2
Mobile & Ohio.....	528	528				250,313	267,674	-17,361		6.5	474	507	-33		6.5
Nash., Chatta. & St. L.....	554	539	15		2.8	201,320	201,712	-392		0.2	363	374	-11		2.9
Norfolk & Western.....	503	428	75		17.5	331,854	272,318	59,536		22.0	660	636	24		3.8
Rich. & Danville.....	757	757				429,834	421,766	8,068		1.9	508	557	-49		8.8
Char., Col. & Ang.....	343	327	16		4.9	98,205	99,125	-920		0.9	286	303	-17		5.6
Col. & Greenville.....	296	296				86,247	113,806	-27,559		24.2	291	394	-103		24.2
Virginia Midland.....	352	352				176,167	167,017	9,150		5.5	500	474	26		5.5
Western N. C.....	190	190				44,066	26,897	17,169		63.4	232	142	90		63.4
Shenandoah Valley.....	249	249				63,683	61,720	1,963		3.1	257	257	0		0.0
South Carolina.....	247	243	4		1.6	146,294	165,087	-18,793		11.4	592	679	-87		12.8
Vicks. & Meridian.....	142	142				65,102	50,907	14,195		27.6	458	361	97		27.6
Vicks., Shreve. & Pacific.....	73	73				28,104	26,749	1,355		5.1	385	366	19		5.1
Total, 23 roads.....	10,205	9,814	391		4.0	5,497,786	4,910,197	587,589		12.0	539	500	39		7.8
Total inc. or dec.....			391					587,589					39		
CENTRAL GROUP.															
Chi. & Eastern Ill.....	252	252				144,958	176,305	-31,347		17.8	575	700	-125		17.8
Chi. & Gt. Trunk.....	335	335				257,990	212,888	45,102		21.2	770	635	135		21.2
Chi., Ind. St. L. & Chi.....	342	342				252,269	240,443	11,826		4.9	738	721	17		2.4
Cin., Wash. & Balt.....	284	284				177,381	181,325	-4,044		2.2	624	638	-14		2.2
Cleve., Akron & Col.....	144	144				49,070	54,718	-5,648		10.3	341	380	-39		10.3
Connotton Valley.....	140	106	34		32.1	35,027	21,673	13,354		61.5	250	204	46		23.0
Det., Lan. & No.....	226	226				169,778	149,570	20,208		13.5	752	662	90		13.5
Ev. & Terre Haute.....	146	146				61,833	72,153	-10,320		14.3	423	494	-71		14.3
Flint & Pere Marq.....	347	347				257,779	198,066	59,713		29.5	743	574	169		29.5
Ill. Central, Ill. lines.....	938	919	19		0.9	609,342	674,477	-65,135		9.7	734	734	0		0.0
Ind., Bloom. & West.....	695	695				270,941	269,047	1,894		0.7	390	387	3		0.7
Lake Erie & Western.....	386	386				132,336	133,698	-1,362		1.0	343	346	-3		0.9
Ohio Central.....	284	232	52		22.4	118,199	114,271	3,928		3.4	416	493	-77		15.7
Ohio Southern.....	138	138				42,155	40,603	1,552		3.8	305	294	11		3.8
Peoria, Dec. & Ev.....	254	254				66,227	58,862	7,365		12.5	261	232	29		12.5
St. L., Alton & Terre Haute.....	195	195				128,003	162,963	-34,960		21.5	656	836	-180		21.5
Main Line.....	121	121				40,384	36,548	3,836		10.5	268	249	19		7.6
St. L. & Cairo.....	152	152				128,000	92,441	35,559		38.6	150	168	-18		10.7
Tol., Cin. & St. L.....	856	550	306		55.6	1,712,830	1,595,679	117,151		7.3	487	466	21		4.5
Wabash, St. L. & P.....	3,520	3,425	95		2.8										
Total, 20 roads.....	9,745	9,249	496		5.4	4,824,731	4,584,110	339,384		5.12	495	496	-1		0.2
Total inc. or dec.....			496					339,384					-1		
NORTHWESTERN ROADS.															
Bur., Cedar Rap. & No.....	714	645	69		10.7	307,640	300,155	7,485		1.5	431	465	-34		7.4
Central Iowa.....	401	290	111		38.3	130,841	108,464	22,377		20.7	326	374	-48		13.9
Chi. & Alton.....	850	850				864,539	858,674	5,865		0.6	1,017	1,010	7		0.6
Chi., Mil. & St. Paul.....	4,612	4,380	232		5.3	2,530,000	2,250,974	279,026		12.4	549	514	35		6.8
Chi. & Northwestern.....	3,770	3,450	320		9.3	2,789,400	2,601,445	187,955		7.2	740	754	-14		1.8
Chi., St. P. M. & O.....	1,230	1,040	190		18.3	648,100	548,852	99,248		18.0	527	525	2		0.3
Des M. & Ft. Dodge.....	138	138				37,571	35,595	1,976		5.5	272	258	14		5.5
Green Bay, W. & St. P.....	220	220				46,115	39,001	7,114		18.2	210	177	33		18.2
Hannibal & St. Jo.....	292	292				247,069	246,194	875		0.4	846	843	3		0.4
Ill. Central, Iowa lines.....	402	402				202,383	204,603	-2,220		1.1	503	509	-6		1.1
Marquette, H. & Ont.....	103	97	6		6.2	128,500	118,218	10,282		8.7	1,247	1,219	28		2.3
Mil., L. S. & West.....	332	285	47		16.5	109,750	83,414	26,336		31.7	331	293	38		13.1
Total, 12 roads.....	13,064	12,080	975		8.1	8,041,938	7,395,589	646,349		8.7	616	612	4		0.6
Total inc. or dec.....			975					646,349					4		
ROADS NORTHWEST OF ST. PAUL.															
Canadian Pacific.....	1,931	988	943		95.4	600,000	301,000	308,000		102.6	315	505	-190		3.3
Northern Pacific.....	2,365	1,419	946		67.6	1,324,000	829,831	494,169		59.6	590	585	5		0.8
St. P. & Duluth.....	210	166	44		26.5	161,959	146,023	15,936		10.9	771	745	26		3.5
St. P., Minn. & Man.....	1,350	1,058	292		27.5	916,882	979,057	-62,175		6.3	679	925	-246		26.6
Total, 4 roads.....	5,856	3,661	2,195		60.0	3,011,841	2,255,911	755,930		33.5	514	616	-102		16.6
Total inc. or dec.....			2,195					755,930					-102		
SOUTHWESTERN ROADS.															
Ft. Worth & Denver.....	110	110				44,700	28,100	16,600		59.3	403	255	151		59.3
Gulf, Col. & St. F.....	536	430	106		22.3	263,426	227,504	35,922		15.7	501	329	172		52.3
Houston, E. & W. Tex.....	135	104	31		29.8	37,428	24,106	13,322		55.5	277	232	45		19.4
Little Rock & Ft. Smith.....	173	168	5		3.0	62,500	64,328	-1,828		2.8	361	383	-22		5.8
Little Rk. Miss. R. & Tex.....	173	173				55,207	39,687	15,520		38.8	319	229	90		38.8
Mo. Pacific lines.....	5,987	5,683	304		5.3	3,781,947	3,475,590	306,357		8.8	632	612	20		3.3
St. L. & San Francisco.....	750	600	150		25.0	361,954	360,993	961		0.2	482				

ing from East Hartford to Longmeadow, on the Massachusetts line, with a branch from Melrose to Rockville, is operated by this company under a lease. It did not earn its operating expenses last year, and as the interest on the bonds owned by this company, issued under a mortgage covering that property, has not been paid for several years, the foreclosure of the mortgage should be considered. After it is all relaid with steel rails, your directors believe that it will prove a source of income, instead of a burden. The Springfield & New London Railroad, 7.27 miles in length, extending from Springfield to a junction with the Connecticut Central road at or near Longmeadow, has been leased for a period of five years from Jan. 1, 1881, at \$5,500 per year. It has no mortgage debt upon it, and a majority of the capital stock is owned by the city of Springfield. It should be bought or leased permanently. It would also be well to extend it to Chicopee, Holyoke and South Hadley Falls, a distance of 10 miles, a practicable route for which can be obtained, and it would bring a large volume of New York business to the main line of your road. A copy of the proposed lease of the Rockville Railroad, which is a branch of four miles in length, extending from Vernon, on the main line, to Rockville, one of the most thriving manufacturing towns of Connecticut, has been sent to all of the stockholders. The result of the operations of the road in the past has demonstrated that the road will earn the amount of rental named in the lease, and the ratification of the lease by the stockholders is recommended by the directors.

FINANCIAL.

"It has been deemed best to sell the transfer steamer 'W. T. Hart,' used at the Newburgh transfer, to a company specially organized for that purpose, and papers for that purpose have been prepared. It is proposed to make the capital stock of the transfer company equal to the actual cost of the steamer now in use, and the New York, Lake Erie & Western Railroad Co. has offered to take one half of the stock of the transfer company at par. The following from the general balance sheet is a correct statement of the assets and current liabilities of the company, Sept. 30, 1883:

Assets.	
One-half interest in New England Transfer Co., cost	\$80,084.22
Steamer 'W. T. Hart' cost	177,194.33
Bonds and stock of Connecticut Central Co., cost	283,642.37
Supplies and materials on hand, cost	487,076.44
Due from agents	165,965.95
Due from companies and individuals	369,630.95
Due from second mortgage trustees	240,509.64
Capital stock in treasurer's hands	46,000.00
Cash	73,759.60
Total	\$1,963,302.50

Current Liabilities.	
Not payable	\$438,108.99
Overdue coupons	7,840.00
Accrued first and second mortgage interest	188,810.00
Unpaid vouchers	680,006.46
Unpaid pay rolls	177,034.69
Due companies and individuals	44,906.00
Total	\$1,557,216.74

Assets in excess of current liabilities 406,085.76

"There are in the hands of the second mortgage trustees \$2,619,000 par value of the company's 6 per cent. second mortgage bonds, the proceeds of which are available for the payment of the above amount due from the trustee, and for construction of second or double track, additions to terminal facilities, and for the purchase of rolling stock. Of this issue of bonds, \$1,258,000 were advertised and sold Feb. 20 by the Finance Committee; \$714,000 have been delivered and paid for up to date (Nov. 27, 1883). The proceeds have been expended in carrying on work of construction, to which they can be legally applied.

"The sale of 5.3 miles of the Woonsocket division (between Newton Highlands and Brookline) to the Boston & Albany Railroad Co., referred to in the last annual report, was consummated, and the property was transferred at noon on Feb. 18, 1883. This company realized from the sale \$409,318 net, all of which was deposited with the Boston Safe Deposit & Trust Co., and was paid out by it for extension of double track on vouchers approved by the proper officers, and on the certificate of the Chief Engineer that the amount stated thereon had actually been expended for double-track work and material. The rest of this division has been operated for the year at a loss of \$27,446 but it is believed that when it is relaid with steel rails it will prove to be a profitable feeder to the main line.

PROPOSED LEASE.

"A lease of your road to the New York, Lake Erie & Western Railroad Co. has been under consideration, and the Hon. Hugh J. Jewett, President of that company, has submitted a proposition, which is in substance as follows: The New York, Lake Erie & Western Railroad Co. will lease, for the period of 99 years, the property of the New York & New England Railroad Co., and all the roads and transportation lines leased or controlled by it; the New York, Lake Erie & Western Railroad Co., to operate the leased roads so as to produce the most favorable results, to pay the cost of such operation, and to pay over to the New York & New England Railroad Co. all the net earnings which may remain. If such net earnings should not in any one year equal the fixed charges of the New York & New England Railroad for that year, the New York, Lake Erie & Western Railroad Co. will advance from time to time the amount necessary to pay such fixed charges, such advances with interest to be charged against any future excess of net earnings which may remain after paying the fixed charges; this to continue until the New York & New England Railroad has been worked for one year for 65 per cent. of its gross receipts, from and after which time the New York, Lake Erie & Western Railroad Co. shall pay over to the New York & New England Railroad Co. 85 per cent. of such gross earnings, out of which the latter company will be required to pay all charges other than operating expenses. In view of the fact that the New York, Lake Erie & Western Railroad Co. controls a system of railroads extending from New York city to Cincinnati and Chicago, has the shortest possible line from the anthracite coal fields into New England, and when its line from Hawley to the Wyoming Valley shall have been completed—which will be early in the spring—it will also control, in connection with the Pennsylvania Railroad, the shortest line from the Clearfield bituminous coal-fields to New England, it is believed that with the natural growth of our business it is fully within the power of that company to increase the gross receipts of your road to \$5,000,000 for the first year, and that with such earnings your road can be operated for 65 per cent., which would yield net earnings of \$1,750,000, or enough to pay all fixed charges and 3 per cent. upon the capital stock. Each year thereafter the gross earnings may fairly be expected to be still larger, and consequently to yield larger dividends upon the capital stock. Your directors therefore recommend the favorable consideration of this proposition. They also recommend that the stockholders, at the ensuing annual meeting, shall express themselves by suitable vote in favor of the proposed lease, and instruct their directors to carry on the negotiations until they are successfully concluded.

RAILROAD EARNINGS, TEN MONTHS ENDING OCTOBER 31.

NAME OF ROAD.	MILEAGE.					EARNINGS.					EARNINGS PER MILE.					
	1883.	1882.	Inc.	Dec.	P. c.	1883.	1882.	Inc.	Dec.	P. c.	1883.	1882.	Inc.	Dec.	P. c.	
EASTERN ROADS.																
Eastern	284	284				\$ 3,079,907	\$ 2,896,828	\$ 183,130			\$ 6.3	\$ 10,845	\$ 10,200	\$ 645	6.3	
Grand Trunk	2,320	2,240	74		3.3	14,494,253	13,532,587	961,669			7.1	6,248	6,025	223	3.7	
Long Island	354	346	8		2.3	2,355,614	2,152,082	203,532			9.4	6,654	6,220	434	7.1	
N. Y. & N. England	399	396	3		0.7	3,082,108	2,850,930	231,178			8.1	7,725	7,190	535	7.3	
Northern Central	322	322				5,142,885	4,783,487	359,398			7.5	15,372	14,876	1,116	7.5	
Pennsylvania	2,059	1,959	100		5.1	42,769,257	40,548,834	2,220,423			5.5	20,772	20,699	73	0.4	
Phila. & Reading	1,280	998	282		28.1	24,347,640	17,782,478	6,565,162			36.0	19,022	17,818	1,204	6.8	
West Jersey	186	173	13		7.6	1,071,155	998,093	103,062			10.6	5,759	5,558	201	3.6	
Total 8 roads	7,204	6,624	580			96,342,882	85,515,319	10,827,563				13,378	12,910	468		
Total inc. or dec.			580		8.5			10,827,563			12.7			468	3.6	
SOUTHERN ROADS.																
Ala. Gt. Southern	290	290				845,063	663,887	181,176			27.0	2,914	2,289	625	27.0	
Ches. & Ohio	517	476	41		8.6	3,242,053	2,780,889	461,164			16.6	6,271	5,842	429	7.4	
Eliz., Lex. & B. S.	130	130				600,917	421,040	179,877			42.7	4,622	3,299	1,383	42.7	
Cin., N. O. & Tex. P.	336	336				2,136,564	2,115,494	11,070			0.5	6,329	6,306	33	0.5	
East Tenn., Va. & Ga.	1,076	901	175		19.4	3,349,635	2,649,279	700,356			26.4	3,113	2,940	173	5.9	
Mem. & Charleston	292	292				1,007,570	846,743	160,827			19.0	3,451	2,900	551	19.0	
Fla. Cen. & West.	234	234				343,051	330,130	12,921			3.9	1,490	1,411	79	3.9	
Fla. Transit & Pen.	243	212	31		14.6	399,933	329,528	70,405			21.3	1,646	1,554	92	5.9	
Ill. Central, So. Div.	578	578				3,287,902	2,732,265	555,637			20.4	5,688	4,727	961	21.6	
Kentucky Central	188	150	38		25.3	700,974	600,438	100,536			16.8	3,729	4,003	...	27.4	
Louisville & Nash.	2,052	2,028	24		1.2	11,563,265	10,246,248	1,317,017			12.8	5,635	5,032	583	11.6	
Mobile & Ohio	528	528				1,088,843	1,577,149	111,694			7.1	3,199	2,981	218	7.1	
Nash. Chat. & St. L.	534	539	15		2.8	1,913,234	1,749,513	163,721			9.3	3,454	3,40	308	9.3	
Norfolk & Western	469	428	41		9.6	2,308,746	1,943,747	364,999			19.0	4,923	4,541	382	8.4	
Rich. & Danville	757	757				3,146,808	2,978,062	168,746			5.7	4,157	3,934	223	5.8	
Char., Col. & Aug.	343	327	16		4.9	608,422	589,178	79,244			13.3	1,949	1,802	147	8.2	
Col. & Greenville	296	296				602,192	592,507	9,685			1.6	2,034	2,002	32	1.6	
Va. Midland	352	352				1,413,266	1,244,526	168,740			17.5	4,015	3,526	479	17.5	
Western N. C.	190	177	13		7.3	312,121	200,510	111,611			55.8	1,643	1,133	510	45.0	
Shenandoah Valley	249	249	9		3.8	708,484	558,714	349,770			97.5	2,845	1,495	1,350	90.5	
South Carolina	244	243	1		0.4	1,073,280	1,013,055	60,225			5.6	4,366	4,169	197	4.7	
Vicks. & Meridian	142	142				404,706	354,858	49,848			14.0	2,850	2,499	351	14.0	
Total 22 roads	10,060	9,650	404			41,707,029	36,317,760	5,389,269				4,146	3,761	385		
Total inc. or dec.			404		4.2			5,389,269			14.8			385	10.2	
CENTRAL GROUP.																
Chi. & Eastern Ill.	252	252				1,373,107	1,483,021	109,914			7.2	5,449	5,885	436	7.2	
Chi. & Gt. Trunk	335	335				2,377,314	1,754,122	623,192			35.5	7,096	5,236	1,860	35.5	
Cin., Ind., St. L. & Chi.	342	342				2,097,093	2,102,236	5,143			65.145	3.0	6,132	6,322	190	3.0
Cin., Wash. & Balt.	284	284				1,561,205	1,456,269	104,936			7.2	5,497	5,128	369	7.2	
Cleve., Akron & Col.	144	144				448,871	422,327	26,544			6.3	3,117	2,933	184	6.3	
Det., Lan. & No.	226	226				1,349,480	1,328,784	20,696			1.5	5,971	5,880	91	1.5	
Ev. & Terre Haute	146	146				606,269	728,696	122,427			12.537	16.8	4,132	4,990	858	16.8
Flint & Pere Marq.	347	346	1		0.3	2,109,533	1,753,339	356,194			20.3	6,080	5,068	1,012	2.3	
Ill. Central, Ill. lines	926	919	7		0.7	5,694,208	5,893,545	199,337			109.337	3.4	6,052	6,315	263	4.2
Ind., Bloom. & West	685	611	84		13.7	2,488,749	2,176,807	311,942			14.3	3,581	3,563	18	0.5	
Ohio Central	273	232	41		13.8	904,081	861,229	42,851			11.0	2,494	2,314	180	40.0	
Ohio Southern	138	134	4		3.0	344,145	310,083	34,062			55.206	8.5	2,349	2,568	217	8.5
Peoria, Dec. & Ev.	254	254				506,613	651,819	145,206								
St. L., Alton & T. H.						1,136,701	1,202,768	66,067			66.067	5.5	5,829	6,168	339	5.5
Main Line	195	195				670,375	727,286	57,911			47.911	6.6	5,615	6,011	396	6.6
Belleville Line	121	121				326,448	300,305	17,143			5.5	2,148	2,035	113	5.5	
St. L. & Cairo	152	152				13,830,057	13,830,690	633			50.633	0.4	3,929	4,123	196	4.8
Wabash, St. L. & P.	3,520	3,365	155		4.6											
Total 17 roads	8,350	8,058	292			37,833,249	37,012,227	1,537,570				4,531	4,593	62		
Total inc. or dec.			292		3.6			821,022			2.2			62	1.3	
NORTHWESTERN ROADS.																
Bur., Ced. Rap. & No.	714	645	69		10.7	2,277,364	2,276,191	1,173			0.1	3,190	3,529	339	9.7	
Central Iowa	355	290	65		22.4	1,045,622	956,576	89,046			9.3	2,945	3,298	353	10.7	
Chi. & Alton	850	850				7,191,133	6,764,514	426,619			6.3	8,460	7,957	502	6.3	
Chi., Mil. & St. P.	4,537	4,281	256		5.5	16,121,000	16,349,078	2,771,932			17.0	4,214	3,810	395	10.6	
Chi. & N. W.	3,627	3,276	351		10.9	20,810,305	20,041,306	768,999			3.8	5,737	6,129	392	6.4	
Chi., St. P. M. & O.	1,230	1,025	205		20.0	4,460,121	4,082,246	377,875			10.634	3.7	2,091	3,018	357	8.0
Des M. & Ft. Dodge	138	95	43		45.3	276,102	311,066	17,220			5.5	1,492	1,414	78	5.5	
Green Bay & W. St. P.	230	230				2,095,402	1,890,577	204,825			10.8	7,176	6,774	702	10.8	
Hannibal & St. Jo.	292	292				1,628,565	1,612,320	16,245			1.0	4,051	4,011	40	1.0	
Ill. Cent., Iowa lines	492	492				826,342	1,176,125	349,783			29.8	8,347	12,784	4,437	34.7	
Marquette, H. & O.	90	92	7		7.6	845,218	714,750	130,468			18.2	2,625	2,590	35	1.4	
Mil., L. S. & W.	322	276	46		16.7											
Total 12 roads	12,786	11,738	1,048			60,905,480	56,461,445	4,484,452				4,763	4,810	47		
Total inc. or dec.			1,048		8.9			4,444,015			7.9			47	8.9	
ROADS NORTHWEST OF ST. PAUL.																
Canadian Pacific	1,395	624	771		123.6	4,452,920	2,017,493	2,435,427			120.7	3,192	3,233	41	1.5	
Northern Pacific	1,830	1,148	682		59.4	7,958,908	5,883,268	2,075,640			40.0	4,340	4,951	602	12.0	
St. P. & Duluth	203	196	7		3.6	1,096,287	888,009	208,278			23.5	5,400	4,531	869	19.0	
St. P., Minn. & Man.	1,320	955	365		38.2	6,849,607	7,097,921	248,314			3.5	5,189	7,432	2,243	30.0	
Total 4 roads	4,748	2,923	1,825			20,357,722	15,880,691	4,919,345				4,288	5,367	1,079		
Total inc. or dec.			1,825		63.5			4,671,031			29.8			1,079	29.8	
SOUTHWESTERN ROADS.																
Gulf, Col. & S. F.	509	356	153		42.5	1,691,892	1,142,869	549,023			48.0	3,324	3,210	114	3.6	
Houst., E. & W. Tex.	124	91	33		36.6	266,331	215,452	50,879			23.7	2,148	2,368	220	9.0	
Little R.R. & Ft. S.	169	168	1		0.6	420,384	363,606	56,688			15.5	2,487	2,165	322	14.0	
Lit. R.R., Miss. R. & T.	173	159	14		8.8	311,488	220,044	91,444			41.6	1,801	1,394	417	30.0	
Mo. Pacific line	5,965	5,341	624		11.7	29,662,504	23,311,861	6,350,643			18.0	4,973	4,705	268	5.5	
St. L. & San Fran.	742	680	82		12.4	3,084,742	2,911,896	172,846			5.9	4,157	4,412	255	5.5	
Total 6 roads	7,682	6,775	907			35,437,341	29,985,818	5,451,523				4,613	4,426	187		
Total inc. or dec.			907		13.4			5,451,523			18.2			187	4.8	
FAR WESTERN AND PACIFIC ROADS.																
Atch., Top. & S. F.	1,820	1,814	6		0.3	11,670,769	11,965,254	294,585			2.5	6,413	6,596	183	2.5	
Southern Kansas	398	391	7		2.0	1,389,658	1,055,318	334,340			31.7	3,492	2,786	706	25.0	
Central Pacific	2,975	3,006	31		1.0	20,677,341	21,503,150	825,809			3.8	6,850	7,153	303	2.0	
Denver & Rio Gr.	1,536	1,688	448		41.2	6,147,450	5,593,269	754,151			14.0	4,002	4,957	955	19.0	
Total 4 roads	6,729	6,299	461		31	39,885,218	39,917,121	1,688,491				5,924	6,337	413		
Total inc. or dec.			430		6.8			31,903			0.1			413	6.8</	



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EDITORIAL ANNOUNCEMENTS.

Passes.—All persons connected with this paper are forbidden to ask for passes under any circumstances, and we will be thankful to have any act of the kind reported to this office.

Addresses.—Business letters should be addressed and drafts made payable to THE RAILROAD GAZETTE. Communications for the attention of the Editors should be addressed EDITOR RAILROAD GAZETTE.

Contributions.—Subscribers and others will materially assist us in making our news accurate and complete if they will send us early information of events which take place under their observation, such as changes in railroad officers, organizations and changes of companies, the letting, progress and completion of contracts for new works or important improvements of old ones, experiments in the construction of roads and machinery and in their management, particulars as to the business of railroads, and suggestions as to its improvement. Discussions of subjects pertaining to ALL DEPARTMENTS of railroad business by men practically acquainted with them are especially desired. Officers will oblige us by forwarding early copies of notices of meetings, elections, appointments, and especially annual reports, some notice of all of which will be published.

Advertisements.—We wish it distinctly understood that we will entertain no proposition to publish anything in this journal for pay, EXCEPT IN THE ADVERTISING COLUMNS. We give in our editorial columns OUR OWN opinions, and those only, and in our news columns present only such matter as we consider interesting and important to our readers. Those who wish to recommend their inventions, machinery, supplies, financial schemes, etc., to our readers can do so fully in our advertising columns, but it is useless to ask us to recommend them editorially, either for money or in consideration of advertising patronage.

OCTOBER EARNINGS.

Our monthly table of earnings has been so rearranged as to present at a glance some of the facts which heretofore have been given only in our comments on the table. We have arranged the roads in geographical groups, which will better enable the reader to know whether the course of earnings on any given road is peculiar to itself, or is common to the lines in the country where it is situated; and may often give some indication whether the loss of one is caused by the gain of a rival road. The advantages of this presentation seem to us to be vastly greater than the disadvantages, chief of which is the greater difficulty, to one not accustomed to using the table, of finding any given road, while in one case (that of the Illinois Central), the lines of a single company are distributed among three groups. This would be done with the Wabash also if it reported the earnings of its Trans-Mississippi roads separately.

The table for October has reports from 78 railroads, with 61,406 miles of road this year, and 5,806 miles (10½ per cent.) more than they worked last year in October. Their aggregate gross earnings were \$42,377,024 this year, which is \$4,566,289 (12 per cent.) more than last year, and their average earnings per mile increased from \$680 to \$690, or 1½ per cent. This is a more favorable result than was shown in September, when the 79 roads reporting made an increase of but \$1 (0.15 per cent.) in average earnings per mile, and in every other month of the year except March there has been some decrease in average earnings per mile. And the comparison is not with an unfavorable month last year. The 74 roads then reporting had an increase of 5½ per cent. over 1881 in their average earnings per mile, and this was the largest increase of the year up to that time. A very considerable change, however, is made by the inclusion of the Central of New Jersey earnings with the Reading's for this year, but not for last year. This is because the Central has very much more than the average earnings per mile, and its inclusion brings up considerably the aggregate average of the 77 roads reporting. In September we had the Central's earnings separately, and excluding these there was a decrease from \$663 to \$651 in the average earnings of the 79 roads reporting that month, while including them there was an increase from \$663 to \$664.

A direct comparison of the aggregates in this year's table for October with those of last year's table is not possible, however, as no less than 18 of the 78 roads reporting this year did not report last year, while 10 of the 69 roads reporting last year do not report this

year as yet, among them such important ones as the Central of Georgia and the Union Pacific. The October table contains very nearly the same roads as the September table this year, however. The September table had the earnings of the Baltimore & Ohio, the Ohio & Mississippi and the Scioto Valley, which are not in the October table, while the October table has reports from the Atchison, Topeka & Santa Fe, the New York & New England, the Vicksburg, Shreveport & Pacific, the Cincinnati, Indianapolis, St. Louis & Chicago, the Evansville & Terre Haute, the Toledo, Cincinnati & St. Louis, and the Fort Worth & Denver, which were not in the September table, though the earnings of all but the Fort Worth & Denver are usually published monthly.

Turning now to the several groups of roads, we find that the four roads northwest of St. Paul had an increase of 60 per cent. in mileage and of 33½ per cent. in earnings, and that their average earnings per mile decreased from \$616 to \$514, or one sixth. These earnings per mile, however, are not small. But that they are not much larger is due chiefly to the Canadian Pacific, with its long line through a country much newer and less developed than that on the Northern Pacific even. The latter earned \$500 per mile, notwithstanding an increase of two-thirds in mileage. This being the first month that the road was open through to the Pacific its earnings have a special interest. They were at the rate of nearly \$16,000,000 per year, which is more even than has been claimed for the road. But October is perhaps the best month of the twelve for this road, at least for the part of it east of the Missouri, where most of its earnings are made. The wheat is then marketed and the winter supplies of merchandise and fuel laid in more freely than at any other season. The wheat is not threshed earlier, and work and transportation are liable to be interrupted by severe winter weather before the end of November, though November is usually a month of good earnings also. The same facts influence the traffic of the Manitoba, whose decrease in October was much less than in previous months, and whose earnings per mile, though 26½ per cent. less than last year, were still decidedly large.

The completion of the Northern Pacific has made this group a "Far West" one, and the extension of the Canadian Pacific will make it still more so; but there are good reasons for keeping it separate from the other roads of the Far West further south. The northern group is supported by agriculture much more than the Southern one; and of the northern roads only the northern Pacific has a traffic from mines and cattle, which are of great importance on all the roads we have put under the head of "Far Western and Pacific roads."

Three of the four latter have reported for October, the Central Pacific showing a small increase in earnings, which has not happened before for some time (it had a decrease of 7½ per cent. in September, and one of 4½ per cent. for the nine months then ending), but this is not so encouraging as it would have been had there not been a decrease last year larger than the increase this year, leaving the October earnings a little less this year than in 1881. The Denver & Rio Grande has about the same increase in mileage as in September, and a little larger increase in earnings, and nearly the same large decrease in earnings per mile. The \$460 per mile which it earned last October is not a small amount, however, for a road in such a country. A great many of the roads north of the Ohio earned less and more than half of the Southern roads. The Atchison, Topeka & Santa Fe, with no change in mileage, has a decrease of 4½ per cent. in earnings; for the ten months it reports a decrease of 2½ per cent.

The most extensive group of roads is that west and northwest of Chicago, including generally lines as far east and south as the Chicago & Alton's line from Chicago to Kansas City, as far west as the Missouri River, and everything farther north except the first-described group of roads. The 12 roads in this group had 13,064 miles of road last year, which is 975 miles (8 per cent.) more than last year; all of them made some increase in earnings except the Iowa lines of the Illinois Central, which had a slight loss. In the aggregate their increase in earnings was 8½ per cent., and there was the slight increase from \$612 to \$616 in their average earnings per mile. The Chicago & Alton and the Hannibal & St. Joseph, which carry from the southern part of this territory—from Central Illinois and Missouri and from Kansas—make very small gains. Three out of four Iowa roads earn less per mile than last year. The three roads which carry from Iowa Minnesota and Dakota to Lake Michigan make considerable gains in total earnings, but trifling ones in earnings per mile (the Northwestern a small loss). October is a month when the spring wheat movement

is apt to be largest, and these roads are the chief carriers of that grain to Milwaukee and Chicago.

The group of roads west and southwest of St. Louis has but seven titles this year, but it includes 12 roads, there being six of the "Missouri Pacific lines," whose earnings were reported separately heretofore. Putting them together makes it much more difficult to understand the course of traffic south of the Missouri, as they are the principal roads in the territory, and it includes two very different kinds of country and traffic, one being distinctively northern, and affording much grain, hogs and fatted cattle, and the other distinctively southern, and exporting chiefly cotton, with cattle from the Texas plains. The lines in question have some road in Eastern Kansas, where the crops should afford a most satisfactory traffic this year, and one of them is one of the heaviest carriers from Kansas to the East; the lines in Arkansas and Texas were profited by extraordinary crops of cotton and grain last year, while this year cotton is very poor and corn not good. But with the figures as given we can only say that with 5½ per cent. more road this year the Missouri Pacific system of nearly 6,000 miles of road earned 8½ per cent. more money last October, the average earnings per mile increasing from \$612 to \$632—under the circumstances a very favorable result. The whole Southwestern group shows an increase from \$576 to \$586 in average earnings per mile. The St. Louis & San Francisco, which is the only one specified in position to profit by the great Kansas crops, made but a trifling gain in total earnings and had a decrease of 12 per cent. in earnings per mile. There was a great crop in Kansas last year also, however, and the St. Louis & San Francisco made a large gain then; its increase in mileage this year is chiefly in Arkansas, and probably makes a very light addition to the earnings. Of the two Arkansas roads one makes a very large gain and the other a small loss, but both have still small earnings per mile.

We will now pass to the group of roads east of Chicago and St. Louis, west of Pennsylvania, including generally everything east of the Chicago & Alton, but also the Wabash, which has a great system west of the Mississippi. This group had not been doing very well this year. In October, however, the twenty roads in it had a gain in earnings nearly as great in proportion as their increase in mileage, and their average earnings per mile decreased only from \$496 to \$495. Seven of the twenty roads had some decrease in total earnings, and nine had a decrease in earnings per mile. There were large decreases by the Chicago & Eastern Illinois, the Evansville & Terre Haute, and the Terre Haute Main Line, and large increases by the Chicago & Grand Trunk and the Flint & Pere Marquette. The Wabash has more than one-third of the mileage of this group. It has a gain of 4½ per cent. in earnings per mile, and last year it had a gain of 10 per cent. over 1881. It had not been doing well, but for the past two months it has done better. There are many roads in this territory which carry through trunk-line traffic, and some of them report, but none of the most important ones. Of these only the Chicago & Grand Trunk shows a considerable gain. The Cincinnati, Washington & Baltimore and the Lake Erie & Western show a small loss; the Terre Haute Main Line a large one; the Indiana, Bloomington & Western a trifling gain.

South of the Ohio and the Potomac and east of the Mississippi 28 roads are in our table, which with an increase of but 4 per cent. in mileage have an increase of 12 per cent. in earnings, and an increase in average earnings per mile from \$500 to \$539 per mile. These roads were doing extremely well last year, and to find them doing so much better this year, though crops in the South are not nearly so good, is somewhat surprising. But there are some signs that they are not all doing as well as they were. In previous months this year, usually every one of these roads has had an increase over last year's earnings; in October five of them had a decrease, usually not large. Some of the gains are very large, as 27½ per cent. on the Vicksburg & Meridian, 19 on the Louisville & Nashville (which gained 16 per cent. last year), 20 on the Memphis & Charleston, and 26 on the Alabama Great Southern, besides larger percentages on some new roads which still have very light earnings. The largest earnings per mile in this group are made by the Illinois Central's Southern Division—namely, \$858, while the average for the 28 roads is \$539, and nine earned less than \$400 and five less than \$300 per mile.

Nine Eastern roads report, showing an increase from \$1,409 to \$1,487 in average earnings per mile. But these averages are hardly comparable, because the Central of New Jersey's earnings are included this year and not last. If we exclude the Reading, the other eight roads with an increase of 4½ per cent. in

mileage had an increase of 6 per cent. in earnings, and the average earnings per mile increased only from \$1,271 to \$1,292, which better represents the course of Eastern railroad earnings, probably. All of the roads gain, the New York & New England and the Northern Central largely.

We may sum up by saying that in no section of the country, except in the South, east of the Mississippi, was there a large increase in earnings over last year last October; in the Southwest, where heretofore this year there has been a large gain, there is a small one in October; the roads of the Far West show a decrease in earnings per mile and so do those northwest of St. Paul, the latter having an enormous increase of mileage, which sufficiently explains the decrease in earnings per mile. The roads west of Chicago make a very small gain in earnings per mile, having a very large gain in mileage, so that to keep up the rate of earnings is quite satisfactory; the roads east of St. Louis and Chicago and west of Pennsylvania did not, as a whole, do well, but better than in other months of this year; and the Eastern roads, over which all the others, to some extent, have an outlet, made a fair gain. Altogether the roads did a little better than last year.

For the ten months ending with October our table has reports from 73 railroads (of 78 if we count the six Missouri Pacific lines separately with 57,559 miles of road this year, which is 10½ per cent. more than last year. The aggregate earnings of these roads for the ten months were \$332,468,901, which is \$31,572,520 (10½ per cent.) more than last year, and the average earnings per mile fell from \$5,778 to \$5,776—about one-thirtieth of 1 per cent. That is, the earnings per mile were almost exactly the same both years, which is doing very well. Last year the 65 roads reporting for the 10 months had an increase of 1.4 per cent. over 1881. We may say, then, that earnings per mile have been nearly stationary for three years.

INVESTIGATION AND REGULATION BY PUBLIC AUTHORITY.

If evidence was required to show the need of an authority, delegated with the power and charged with the duty to investigate railroad accidents, the report of the New York Railroad Commission on the Glens Falls Bridge accident, which was published last week, would supply it.

The examination into the causes of the accident seems to have been very thorough, and, while the report is not what would be expected of an expert in bridge construction, it nevertheless indicates that the evidence was collected by some one who knew in what direction to make inquiry in order to get at the real jury, causes of the disaster. The verdict of the coroner's with which the Railroad Commissioners concurred, was that the bridge "was unfit and unsafe for the purpose for which it was used, by reason of the unsound state of the timber and the insufficient quantity of iron used in the original construction." In other words, a bridge, that never was strong enough to bear the loads it had to carry recently, was partly rotted away, and consequently fell down while a light passenger train was crossing it, and killed three people and injured 22. Up to July 1 of this year this bridge had been under the care of the then Chief Engineer of the road, who had inspected it *about a year before*. July 1 he was relieved by order of the President of the road, and the "supervision and maintenance of tracks and permanent way now (then) in charge of the Chief Engineer" was transferred to the Division Superintendent. As "bridges were not specifically mentioned in the order, he seems to have been in some doubt as to just where his responsibility began and ended with regard to them," and as he did not consider himself a bridge expert, he simply continued the orders given by the former Chief Engineer to the Master Bridge-builder, who "was a bridge carpenter by trade, and was unable to calculate strains on bridges, and judged by experience about what the size of different members ought to be." On this man the Division Superintendent "depended to report to him if he thought anything was wrong." In other words, the bridges on this part of a great road were placed in charge of a man who was ignorant of bridge construction and who was not sure whether the bridges were or were not intrusted to his care, and who delegated whatever responsibility he had to another person, who was equally, or more, ignorant of his duties. Surely there was good reason for condemning the management under which such a condition of things could exist, and the circumstances seem entirely to justify the Commissioners in saying, as they did, that "for divided responsibilities and incompetency in the performance of their duties by subordinates, such as is here disclosed, a railroad corporation is primarily

and legally responsible." The Commissioners could with advantage have dwelt more on the responsibility of railroad companies for the incompetency or for the ignorance of those placed in authority and in positions of responsibility. The bridges on the road on which this accident occurred were placed under the charge of the Division Superintendent, who "did not consider himself a bridge expert." Now, if this were an exceptional practice it would, perhaps, be hardly worth while to say more about it. It is, however, not an unusual thing for this class of officers, who often know very little of either the theory or the practice of bridge construction, to have the care of the bridges on their line. There seems to be need for insisting that no railroad officer should be placed in charge of things of which he is ignorant, or, in other words, that the limits of authority should be within the bounds of knowledge. It is a common thing to find men controlling matters on railroads who have not even an elementary knowledge of the principles and no experience in the practice of the matters placed under their control. There are those even who contend that a thorough knowledge of principles and a minute acquaintance with the details of any subject has the effect of dwarfing the mind and of unfitting it for taking "broad" views regarding it, or, in other words, that a certain measure of ignorance is essential for sound judgment. Acting upon this principle, men are placed in charge of the locomotive who, if required to do so, would be unable to calculate the area of one of their pistons. There are those in charge of the car departments of important railroads who are not able to lay out the plan of a car so as to insure that the seats and windows will come opposite to each other. The signals of great lines are often controlled by persons who are quite ignorant of those principles of signaling which have been worked out by long experience, and which are as well established as those which are known to control the working of steam engines. Men are given the care of bridges who could not calculate the strain per square inch on a vertical rod with a known weight suspended on the lower end of it. In fact, there are roads, and important ones too, on which any respectable amount of education is an insurmountable barrier in the way of a person's advancement. On some lines, it is true, a technical school education alone has been considered a sufficient qualification for holding responsible places. The results, if known, would probably not be satisfactory to the owners of the roads; but, unfortunately, the mistakes which such men make, like those of the doctors, are buried in oblivion, and are seldom dug up for investigation.

The practice which is here protested against, and which the Railroad Commissioners touched upon, is the placing of men in charge of matters of which they have no special knowledge. Often a man who has such information is nominally given control of some department, but his authority is then limited by that of another person who is without special knowledge, so that what the man who could act intelligently does is restricted by the will of one who is ignorant. There are plenty of such cases where the authority of men in charge of the locomotive, car, permanent way, signals, bridges, etc., is limited by others with little or no knowledge, excepting that acquired in the traffic department, or in running trains, or in the office of some other department. It is not intended, by what has been said, to counsel insubordination. All departments must necessarily be controlled by the general management. Those who control the purse-strings must be able to check expenditure anywhere and everywhere, and it is impossible or impracticable that in the exercise of that power those who control the finances should have knowledge of all the principles and details in the different departments over which they must exercise control. There must, too, be a head, a commander-in-chief, in every army of workers, as well as in those organized for warfare. The practice which is protested against is that of giving authority to those who have no special knowledge, and, in many cases, withholding it from those who have. The New York Railroad Commissioners have formulated the principle, and expressed it in very forcible language, which will bear repeating, that: "For divided responsibilities and incompetency in the performance of their duties by subordinates, such as is here disclosed, a railroad corporation is primarily and legally responsible."

But while the Railroad Commission will do well to enunciate this principle, there is a chance, and some premonition, of their attempting reform in railroad practice by directly prescribing regulations. They have recently issued a circular to railroad companies, which will be found on another page, in which they ask the officers of the companies whether there ought not to be a law requiring all locomotive boilers to be

tested, and another requiring employes to be examined for color-blindness "by some competent person."

Undoubtedly boilers ought to be inspected frequently. No one acquainted with the subject has any doubt on that point; but it would be difficult to frame a law which would be sufficiently explicit to cover all essential points. Boilers on some roads need to be examined oftener than on others, according to the quality of the water, work done, age of the boiler and its original construction, etc. Then, what should be the nature of the test and inspection? Should it be a pressure test alone, or an internal examination, or the two in combination? If the first, how great should be the pressure? Should it be by hot water, cold water or steam? Who could define the amount of care which should be taken in making an internal examination? The effect of such a law would inevitably be that it would lead in some cases to the observance of its letter, and then a relapse into fancied security, because the law had been observed. How would it be possible to determine whether a person was competent to make such inspections? Would the law define the qualifications which an inspector should have to make him competent?

If the Commission will ascertain the practices of the several roads in regard to boiler inspection (supposing this to be a matter which now needs such investigation as they can make), point out, so far as they are able, those which are faulty or insufficient, urge attention to the subject, and unsparingly condemn neglect, which they will in most cases learn only when it has resulted in accident, they will accomplish much more, we venture to say, than if they should obtain the authority, and should exercise it, to prescribe methods of inspection and appoint inspectors. In the latter case they would make themselves responsible for the locomotive boilers, and would relieve the railroad companies of the responsibility. And this may be said of almost every other railroad practice. It is simply impossible that any commission should be as well qualified to determine the practice in every department on every road as a body of men each of whom gives his time to one department on one road. The work of inspection and criticism, if wisely conducted, the Commission may exercise with good results; positive regulation cannot be exercised by such a body without great danger, and it is doubtful if it can be exercised with advantage at all. It is altogether probable that if it were attempted it would very seriously check the progress of improvement in railroad operation. But there are many weak points in railroad practice which can be mended and ought to be mended and would be mended if sufficient attention were given them by the railroad authorities, and will never be mended by any one else. Some of these can easily be discovered, even by men with little knowledge of railroad working. The Railroad Commissioners, in course of time, will find many of these sore places. If they will point them out, and put their fingers on them and keep them there, it will hurt, and those who are and who should remain responsible for the working of the railroads will feel the pain and will be much more likely to do something about it than they are when there is little intelligent effort to call their attention to the evils that need to be removed; and the remedies which they apply are likely to be much more effective than those that any three men could prescribe for a whole state railroad system.

GRAIN AND PROVISION EXPORTS.

The exports of agricultural produce for the month of October make a favorable comparison with last year and the year before, but not a favorable one with some previous years. It looks very well to have 4,845,000 bushels of corn exported during the month this year against 1,006,000 last year, until we find that with the exception of last year the corn exports have not been as little as 4,000,000 bushels in October since 1869 at least, and that the exports this year with that exception are the smallest since 1878. The wheat exports, including flour, are not even as large as last year, but 902,000 bushels more than in 1881, and with that exception the smallest since 1876. Taking flour, wheat and corn together, which form nearly the whole of our cereal exports (\$3,000,000 worth of other grains out of a total of \$145,000,000 in the ten months of this year to the end of October), the bushels exported in October were 7 per cent. more than last year and 5½ per cent. more than in 1881, but 45 per cent. less than in 1880, and 48 per cent. less than in 1879, and less than in any other year since 1876.

The smallness of the wheat exports has been much more owing to the lack of foreign demand, however, than to a short supply; although the crop this year is

short, the surplus remaining from last year's crop was so large that we could have made large exports, and in fact the quantity in store at nearly all the markets is exceptionally large. The course of the breadstuffs exports in October for eight successive years is given below:

	Wheat, bu.	Flour, bbls.	Flour and wheat, bu.	Corn, bu.	Total, bu.
1876...	6,973,497	370,190	8,679,852	5,776,775	14,456,627
1877...	11,657,290	338,594	13,180,963	4,388,427	17,569,390
1878...	11,908,465	485,737	13,004,221	4,525,222	18,019,443
1879...	20,290,856	609,547	23,312,817	5,682,187	28,995,004
1880...	15,572,867	616,562	18,852,390	5,536,225	27,415,021
1881...	7,590,491	348,046	9,156,698	4,976,460	14,133,197
1882...	10,043,247	639,848	12,922,563	1,057,775	13,928,338
1883...	6,587,728	771,586	10,058,515	4,845,371	14,903,886

The flour exports, it is seen, were larger this year than ever before, so that they make up for 599,471 bushels of the 3,455,519 bushels of decrease in wheat exports. Still it is due to corn that there is not a decrease from the very small exports of last year.

Provision exports make a very favorable comparison with last year and the year before. Counting fresh and salt beef, tallow, butter and cheese as "cattle products," and bacon, ham, pork and lard as "hog products," the comparison with last year for October is as follows:

	1883.	1882.	Increase.	P. c.
Cattle Products:				
Pounds.....	32,487,970	15,046,975	17,440,995	116.0
Value.....	\$3,492,967	\$1,588,127	\$1,814,840	114.6
Hog Products:				
Pounds.....	52,895,253	24,276,106	28,619,147	118.0
Value.....	\$4,925,830	\$3,074,499	\$1,851,331	60.2
Total:				
Pounds.....	85,383,153	39,323,081	46,060,072	117.1
Value.....	\$8,328,797	\$4,662,626	\$3,666,171	78.6

The vast increase in cattle products, it appears, was made without any appreciable decrease in price; more than half was in the single item of fresh beef, more than four times as much of that having been exported this year as last; there was no increase in salt beef, but one of nearly 200 per cent. in tallow, of 370 per cent. in butter, and 26 per cent. in cheese. This great growth of exports of cattle produce is especially encouraging, because it is not simply a gain after a loss last year, but the exports are positively large—not only 116 per cent. more than last year but nearly 60 per cent. more than in 1881, and more than in any previous October, except in 1880. For six successive years the October exports of cattle products and hog products have been, in pounds:

	Hog products.	Cattle products.	Total.
1878.....	53,185,279	21,888,528	85,073,807
1879.....	76,396,332	32,021,951	108,418,283
1880.....	88,035,700	37,444,583	125,480,283
1881.....	65,162,027	20,914,312	86,076,339
1882.....	24,276,106	15,046,975	39,323,081
1883.....	52,895,253	32,487,970	85,383,153

The hog products, we see, though 118 per cent. more than last year, were smaller than in any previous October in the list. They were larger, however, than in any October previous to 1878, for there was a great increase in the production and exports after 1877. Though the total exports of cattle products were about a fifth less than in 1880, the exports of fresh beef this year were much larger than ever before in October. In 1880 1,185,000 lbs. more butter, 5,494,000 lbs. more cheese and 2,165,000 lbs. more tallow than this year were exported. As there has been a great extension of the grazing business on the great plains west of the Missouri of late years, it has been somewhat surprising that it was not felt more in the exports, and that those of 1881 and 1882 should have fallen so far below those of 1879 and 1880. The severe winter of 1880-81 had a bad effect, doubtless, and in fact it is but a very small fraction of the total production that is exported in the most favorable years even. During the "packing year" ending with October our exports amounted to less than 2 lbs. of fresh beef, $\frac{1}{4}$ lb. of salt beef, 1 lb. of tallow, 0.4 lb. of butter and 2.2 lbs. of cheese for each of our inhabitants. Of course the average yearly ration of our own people has been many times these amounts, which would be about equivalent to a soldier's meat ration for a single week. But as a comparatively small decrease in production may thus make a very large reduction in the exports of beef, etc., so an increase such as now seems to be in progress through the occupation of the plains for ranches and the stocking them up to their capacity should afford us a surplus enough to increase our exports several times over. The possibilities of this branch of exports are so great that we will examine them further for the year ending with October, excluding dairy products. For ten years they have been:

	Fresh beef.	*Salt beef.	Tallow.	Total.
1873-74.....	39,644,086	91,795,758	131,439,844	
1874-75.....	43,120,492	61,664,825	104,785,317	
1875-76.....	49,156,184	86,035,516	135,191,700	
1876-77.....	45,047,223	43,808,485	78,855,708	
1877-78.....	50,050,955	43,107,816	94,608,019	
1878-79.....	63,216,950	38,137,665	108,409,214	
1879-80.....	94,117,714	48,340,594	122,227,630	
1880-81.....	107,675,484	39,091,356	73,686,825	
1881-82.....	47,842,577	43,510,260	41,619,950	
1882-83.....	108,927,716	42,477,203	52,276,547	

*In the first three years the exports of fresh beef were insignificant, and were not separated from the salt beef exports.

The exports of fresh beef, which are of recent origin, grew rapidly till 1880-1, and though they fell off more than half the next year, last year they re-

covered the whole of the loss, and were even larger than ever before. The salt beef exports have varied very little, and are apparently not at all affected by the growth of the fresh beef exports. In tallow the exports of last year as well as the year before were much less than in any other of the ten. On the whole, there has been no increase in the aggregate since 1878-79, but the quick recovery of the exports last year after a falling-off of two-fifths the year before gives us a right to regard this as a growing business.

The course of exports of hog products has followed that of hog packing, which we traced Nov. 23. The increase in exports over last year has all been made in the last few months.

For twelve successive years to June 30 the exports of hog products have been, in millions of pounds:

Years to June 30.	Millions of pounds.	Years to June 30.	Millions of pounds.
1871-72.....	503	1877-78.....	1,007
1872-73.....	690	1878-79.....	1,143
1873-74.....	623	1879-80.....	1,239
1874-75.....	473	1880-81.....	1,233
1875-76.....	550	1881-82.....	799
1876-77.....	764	1882-83.....	620

Thus in the last fiscal year the exports were only about half what they were in 1880 and 1881, and the smallest for seven years. But there has been such a change since June that for the year ending with October there is an increase from 677.7 to 746.2 millions in the exports. And the whole of the gain has been made since June, the exports for the eight months ending with June and the four months ending with October having been:

	1882-83.	1881-82.	Inc. or Dec.	P. c.
Eight months.....	457,141,170	532,920,129	Dec. 75,788,959	14.6
Four months.....	289,117,052	144,801,314	Inc. 144,315,738	99.7

Year.....746,258,222 677,721,443 Inc. 68,536,779 10.1
Thus we have the enormous increase of nearly 100 per cent. in the last four months, transforming a decrease of 14 per cent. for the first eight months of the packing year into an increase of 10 per cent. for the full year. That the exports of the last four months have been positively large, and not large only in comparison with the very small ones of last year, we shall see from the following statement of the exports for these four months for seven successive years, in millions of pounds:

	1876-77.	1877-78.	1878-79.	1879-80.	1880-81.	1881-82.	1882-83.
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1876-77.....249.2 315.9 363.7 259.4 144.8 289.1
189.4 249.2 315.9 363.7 259.4 144.8 289.1
Thus this year the exports for this period have been exceeded only in two years, in 1878-79 by 9 per cent., and in 1879-80 by 20 per cent.

It is the revival of these provision exports and the recovery and prospective growth of the cattle exports that are the most favorable features of the situation, so far as agricultural production is concerned.

Erie Earnings in the Last Fiscal Year.

An almost inexcusable error was made near the beginning of our article entitled "The Erie's Last Fiscal Year" last week, in stating the gross earnings of the old Erie system for the last fiscal year. After ascertaining that the gross earnings of this system for the year plus those of the leased New York, Pennsylvania & Ohio for the five months of the lease were \$23,843,368, and that the total gross earnings of the Ohio road for the time were \$3,253,503, our article says, "the gross earnings of the Erie system east of Salamanca—the system worked in previous years, with comparatively small changes—were \$19,548,744 last year," etc. This is a self-evident untruth. The actual Erie earnings were \$20,589,865 instead. The error arose from subtracting the New York, Pennsylvania & Ohio earnings not from the total gross earnings of the two roads just stated, but from what the Erie statement gives as gross earnings, including only 68 per cent. of the New York, Pennsylvania & Ohio earnings. It is therefore too small by the whole amount of the rental of the Ohio road, 32 per cent. of its gross earnings, amounting to \$1,041,121—a very great difference. Instead of there being a decrease of \$427,030 from the earnings of the previous year, there is an increase of \$614,091 (3 per cent.), and instead of a decrease of \$896,523 in earnings during the five months (which in view of the enormous increase on the leased line was unintelligible), there was an increase of \$194,598 (1.6 per cent.) Even this latter gain is surprisingly small, in view of the fact that the leased New York, Pennsylvania & Ohio in these five months made a gain in this time of no less than \$773,717, or 31 per cent. In the seven months before the lease the Erie proper gained an average of about \$60,000 per month; in the five months of the lease, only \$39,000. Making the correction for the gross earnings of the old Erie system, we find them to have been in each year since the reorganization:

Year.	Earnings.	Year.	Earnings.
1877-78.....	\$15,644,978	1880-81.....	\$20,715,605
1878-79.....	15,942,023	1881-82.....	19,975,774
1879-80.....	18,693,108	1882-83.....	20,589,865

Thus the gross earnings this year were slightly less

than those of 1880-81, but greater than in any other year.

A further erroneous statement in our last week's article was that which inferred that a certain sum represented the loss or profit on the lease. There is nothing whatever to indicate what were the working expenses or net earnings of either road separately.

We have heretofore reported the gross receipts of the New York, Pennsylvania & Ohio road for the first three months of the lease. Late London papers have the report for August, showing them to have been \$753,665. By computation from data in the Erie annual statement we found last week the New York, Pennsylvania & Ohio earnings for the two months of August and September to have been \$1,478,367, so that for September they must have been \$724,702, and for the five months of the lease they have been:

Year.	May.	June.	July.	August.	September.
1883.....	\$568,776	\$593,465	\$612,895	\$753,665	\$724,702
1882.....	472,774	461,102	461,788	528,490	555,096
1881.....	470,369	447,279	430,793	462,523	461,318
1880.....	346,644	368,456	432,877	475,204	500,748
1879.....	317,143	301,272	390,042	415,364	431,520

We quote them for previous years in order to show what has been the usual course of earnings. There has always been an increase from May to September, we find, except in 1881, when the railroad war greatly reduced the earnings in the fall; but the increase this year has been much greater than in any other year, except 1880. The opening of the Chicago & Atlantic and the heavy shipments by Erie freight lines were reasons why there should have been exceptionally large earnings after June. Having the monthly earnings of the New York, Pennsylvania & Ohio, we are able to ascertain those of the old Erie system as follows:

Year.	May.	June.	July.	August.	September.
1883.....	\$1,669,292	\$1,653,991	\$1,694,687	\$2,068,464	\$2,120,338
1882.....	1,681,798	1,756,684	1,850,390	1,843,144	1,880,215
1881.....	1,776,890	1,794,982	1,787,080	1,772,895	1,734,199
1880.....	1,592,544	1,691,812	1,580,977	1,606,872	1,786,418
1879.....	1,350,474	1,230,419	1,273,533	1,450,223	1,492,597

Thus in the last two months, when the increase of the whole system was greatest—when, indeed, the whole increase of the year was made—the earnings of the two roads were:

	1883.	1882.	Increase.	P. c.
N. Y., P. & O.....	\$753,665	\$528,430	\$225,235	42.7
Erie.....	2,068,464	1,843,144	225,320	12.2

	1883.	1882.	Increase.	P. c.
Total.....	\$2,822,129	\$2,371,574	\$450,555	19.0

	1883.	1882.	Increase.	P. c.
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	1883.	1882.	Increase.	P. c.
N. Y., P. & O.....	\$724,702	\$555,006	\$169,696	30.4
Erie.....	2,120,338	1,880,215	240,123	12.8

	1883.	1882.	Increase.	P. c.
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	1883.	1882.	Increase.	P. c.
Total.....	\$2,845,040	\$2,435,221	\$409,819	16.8

In August we see that each road gained about the same amount, though the gains were very different percentages of the total earnings. In September the Erie gained about two-fifths more than the Ohio road. If the gain had been due to a general increase of traffic the percentage of increase should have been about in proportion to the gross earnings on each road—that is, much larger on the Erie or much smaller on the Ohio road than it really was. If, however, it was due wholly or chiefly to an increase of through traffic passing over the Ohio road, then it should have been divided between the two roads about in proportion to their mileage. Now, on freight interchanged with the Chicago & Atlantic the Ohio road has a haul of 304 miles, and on that exchanged with the Chicago, St. Louis & Pittsburgh a haul of 353 miles, while the Erie has a haul of 413 miles on both. Thus, on this traffic the Ohio road's earnings should not be very much less than the Erie's, and we therefore infer that it was this traffic chiefly which gave the two roads their great increase of earnings in these two months. But the Erie may have given, and doubtless did give, to the New York, Pennsylvania & Ohio traffic which last year it gave to other connections, so that the actual increase in through traffic over the Ohio road should have been greater than the increase on the Erie.

The Iowa Trunk Lines and the Union Pacific.

The Omaha pool meeting on Wednesday of last week resulted in an agreement to have another meeting Dec. 13, and in the Milwaukee & St. Paul putting off to the end of the year the time of its withdrawal, which otherwise would have been Dec. 15. More important than this action, probably, was the full statement of grievances by the St. Paul. The chief of these seems to be that it is not admitted to the passenger pool with an equal share of the traffic. It is objected that this is no grievance, for it leaves the St. Paul free to get all the passenger traffic it can. But the practical result probably has been that it has hardly made a dollar out of the Omaha travel during the year that it has been open, and though the other roads have not made much either, that does not help the St. Paul any.

Apparently it does not claim that it is entitled to a larger share of the live stock than is awarded it, though for some time it has carried very much more; but it says that this surplus has been turned over its road by a combination of stock shippers for the purpose of breaking rates, and so, having carried the surplus without any fault of its own, it is unjust that it should have to pay over all the earnings from

it, when it has to pay all the expenses of carrying it. Under the circumstances it claims either that the traffic should be diverted to the roads that are short or that they should be satisfied to receive the net earnings of the surplus carried by the St. Paul; and if it is true that the St. Paul's excess is wholly due to the action of the shippers, this seems a reasonable claim. The other roads, however, intimate that the St. Paul has made special efforts to secure the traffic which it now complains of having to carry without pay.

A third complaint is that the Burlington, through its line south of the Platte, and the Northwestern, through its connections north of the Platte, are able to cut rates and so divert traffic from the Union Pacific which otherwise would reach Omaha by that road and go into the pool, while when carried across the Missouri at Blair to the Northwestern or at Plattsmouth to the Burlington, it is taken from the pool.

This latter can hardly be a matter sufficiently important to make a fight about. A fourth or a fifth of all the traffic so diverted will hardly make any one rich. It indicates, however, that in case of conflict the Union Pacific might be inclined to favor the St. Paul and the Rock Island roads rather than the Northwestern, which competes with it a little, or the Burlington, which competes with it a great deal.

It is said that at this Chicago meeting the Burlington and Northwestern were willing to admit the St. Paul into the passenger pool on equal terms, but that the Rock Island objected, affirming that it was at great expense for many years to secure its position as a well-known Chicago-Omaha line, and that it is impossible that any new line can command the advantage so secured. There is much truth in this, certainly; but it is also probable that a new line, in the course of building up a name and business, is likely to make the whole travel unprofitable to every one concerned during the process, and that it may be much cheaper to give the new line more than it can command at first in open competition, than to have it reach its position in the old way, costly to itself and just about as much so to everybody else.

It has also been said that the Rock Island claims that it should have an equal share of the Chicago-St. Paul travel if the St. Paul has an equal share of the Chicago-Council Bluffs travel. The Rock Island is perhaps better known to-day as a St. Paul line than the Milwaukee & St. Paul is as a Council Bluffs line; but the latter is as short as the shortest, while the Rock Island's line to St. Paul is quite circuitous. Very likely, however, many of the arguments which the St. Paul Company used a year or so ago, to show how little St. Paul travel the Rock Island could command, come ready made for use against the St. Paul now. This is a danger which needs to be looked out for now-a-days. When a company announces something as a law governing the right distribution of traffic it should know what effect the application of that law will have on other traffic which it shares or hopes to share. It will hardly pay to be at great pains to develop a general principle which will give us 60 instead of 40 per cent. of the shipments of Smithtown, amounting to 10,000 tons per year, if the application of the same principle will give us 40 instead of 60 per cent. of the shipments of Brownville, amounting to 10,000 tons per week.

Sooner or later nearly every road will have an opportunity to have the arguments it uses against its rival applied to itself. Just now, for instance, the Erie is interested in showing to the Board of Arbitration that the newness of the Chicago & Atlantic will not prevent its commanding as much of the Chicago shipments as any old road can get; and at the same time that the newness of the Lackawanna puts it under great disabilities in commanding traffic between New York and Buffalo. It is one of the advantages of a permanent Commissioner and Arbitrator that they will hear the different applications of principles, or what are set up as principles, by the same companies. This should result in time in the development of a certain body of generally accepted traffic laws.

A report has been widely spread, the foundation for which can be traced to nothing more trustworthy than the lively imagination of a Chicago reporter, though we cannot say that it has no other foundation, to the effect that a secret compact has been made between the Union Pacific on one side and the Rock Island and the Milwaukee & St. Paul on the other, whereby the former will direct all its east bound traffic over the two latter. What these two Chicago roads would have to gain by this is obvious; but it is not so obvious what the Union Pacific could gain. We must remember, however, that the Chicago, Burlington & Quincy competes with the Union Pacific for all the Nebraska traffic south of the Platte accessible to both, as much of it is, for the cattle from the plains, and for the Colorado business at Denver. Now the Union Pacific can carry and make rates on this traffic only as far east as Council Bluffs, while the Burlington carries it to Chicago, 500 miles further, to Chicago or St. Louis. This gives the latter a great advantage whenever there is any actual competition. It is easy to see that a concession to a shipper might be made out of a rate for carriage a distance 700 miles past Council Bluffs to Chicago, which would be altogether unprofitable, if it came out of a rate for carrying 200 miles to Council Bluffs. So, if there is active competition between the Burlington and the Union Pacific, the latter would gain a considerable advantage by securing the power to make rates through to Chicago, to be divided in agreed proportions between it and a road from Council Bluffs to Chicago.

The Northwestern has no roads which it controls directly west of the Missouri except the St. Paul & Omaha, but the Sioux City & Pacific, one of its Iowa connections, has, and altogether there is a considerable system of roads in Nebraska north of the Platte which send their traffic eastward

over the Missouri at Blair, and compete at a few points with the Union Pacific, and will probably be able hereafter more than heretofore to secure cattle shipments from the plains, partly because it has recently completed a line up the Niobrara far enough west to reach the grazing country, but chiefly because of the completion of the bridge at Blair, a ferry transfer being a great drawback in carrying cattle. This company is entirely distinct from the Northwestern, but as the latter receives all its traffic, it is for its interest that the Sioux City & Pacific should secure shipments rather than the Union Pacific, because it gets but one-fifth of the shipments by the latter. This gives it a motive for sharing in a cut which the Sioux City & Pacific might make to secure traffic, and this being so, the Union Pacific is likely to suspect that it does so share whether it does or not. The competition of the Northwestern's connections west of the Missouri, however, must be trifling in comparison with that of the Burlington's connections.

If, then, the Rock Island and the Milwaukee & St. Paul might gain greatly by the compact suggested, and the Union Pacific might gain something, why should it not be made? We must not answer this until we learn what effect it would be likely to have on the other railroads east of the Missouri, from which it would take all the east-bound traffic which at present they interchange with the Union Pacific. Of course should the Union Pacific turn all its traffic away from them, they would, so far as possible, turn all their traffic away from it. They, however, have not, like the Union Pacific, a number of lines west of Omaha from which to choose. The Burlington has its own line to Denver, and there connects with the Denver & Rio Grande from Ogden—a circuitous route, but one to which the Burlington, doubtless, could give a great deal of traffic should it work for it instead of the Union Pacific. Further, the Burlington connects at Kansas City with the Atlantic & Pacific route to the Pacific, and the Southern route by the Atchison, Topeka & Santa Fe and the Southern Pacific. The Northwestern could interchange with the Burlington route west of Council Bluffs, and would probably do so if given a proportionate share of the east-bound traffic, rather than give traffic to the Union Pacific in return for nothing. It has no connection with the southern route to the Pacific. But it could work effectively against the Northern Pacific where the Burlington cannot, by taking all Oregon and Washington traffic to the Northern Pacific at St. Paul instead of part of it to the Union Pacific at Council Bluffs. The Union Pacific, it must be remembered, has a share of this Oregon traffic through its Oregon Short Line.

Again, before the Union Pacific decides to cut off the Burlington and the Northwestern, it will probably reflect that the Burlington at Denver is but about 400 miles from the Central Pacific at Ogden, and that the present western terminus of the Sioux City and Pacific is but about 600 miles from the same place, and that these roads, or one of them, may push on to that place, and that then the Central Pacific may exchange exclusively with them, as the Union Pacific would be exchanging exclusively with the Rock Island and the Milwaukee & St. Paul, and in such case, with a competitor for local traffic on each side of its main line all the way from Omaha to Ogden, and no Pacific traffic except to Oregon, its last state would be worse than its first.

Thus we see that the Union Pacific may have something to lose as well as something to gain by making arrangements to interchange traffic exclusively with two of its five Eastern connections.

Banquet Statistics.

The growth of grain exports from New Orleans was mentioned by Governor Cleveland at the Evacuation Day banquet at the Chamber of Commerce as threatening the supremacy of the commerce of New York city. As evidence he cited the New Orleans exports for the last two years ending Aug. 31, as follows:

	1882-83.	1881-82.	Increase.	P.c.
Bushels.....	12,691,015	3,383,923	9,307,092	275.0

This statement by itself makes the competition of New Orleans seem a most formidable thing. At this rate, the Governor might say, New Orleans will export 47 millions of bushels of grain this year, 174 millions next year—and then what will there be left for New York?

But in matters of this kind if we do not wish to jump to conclusions we need to look over more than two years' business, and if we see any great change from year to year to inquire into all the chief facts likely to cause a change, and not into a single one. For instance, if there was no grain to export one year and a great deal the next, a port might increase its exports several thousand per cent. without any great significance.

First, we shall find that the breadstuffs exports of the whole United States were exceptionally small in the first year which the Governor mentions. For the fiscal year ending with June for six successive years they have been, in millions of bushels:

	1877-78.	1878-79.	1879-80.	1880-81.	1881-82.	1882-83.
	191.2	246.6	284.7	283.2	108.1	180.9

There was thus a decrease of 115 millions in the exports of the United States in the year 1881-82 from those of the previous years, which may well have made New Orleans exports exceptionally small that year. We have not these exports for the year ending Aug. 31, but we have the receipts of New Orleans for that year, which for six years have been (all grains, but not flour):

	1877-78.	1878-79.	1879-80.	1880-81.	1881-82.	1882-83.
	11,392,784	12,168,263	17,538,986	19,863,887	8,405,477	16,516,561

Now for the calendar year the wheat and corn exports of

New Orleans have not since 1877 been so small as the 3,383,923 bushels given by Governor Cleveland for the year to Aug. 31, 1882, the smallest being 6,884,000 in 1878 and the largest 14,550,000 in 1880, and for five successive years they have been:

	1878.	1879.	1880.	1881.	1882.
	6,863,752	6,706,256	14,550,491	12,218,161	6,346,220

This indicates that six or seven millions of the annual New Orleans receipts are required for domestic consumption, there being about that difference between its receipts and exports. We may assume that the New York Chamber of Commerce would not wish to deprive New Orleans of this, its bread. But when we take six millions from the receipts of the year to Aug. 31, 1882, we have a surplus of but 2,405,000 bushels left, while it leaves 10,503,000 bushels from the receipts of last year.

If we compare the New Orleans exports in this last year with those of years previous to 1882—which are the only ones that can properly be compared with last year, being years of large production since the improvement of the mouth of the Mississippi—we find that they are very little more than in 1881, and nearly a seventh less than in 1880. And they are truly a very small proportion of the country's exports, and they come from a territory which exports by way of Philadelphia and Baltimore rather than by way of New York. This is indicated by the following statement of the percentage of total exports of breadstuffs going from the United States by these several ports:

	1878.	1879.	1880.	1881.	1882.
Philadelphia.....	12.7	12.1	10.6	7.3	4.7
Baltimore.....	16.9	20.5	16.7	15.3	12.8
New Orleans.....	3.3	2.6	5.8	5.6	4.8
Total of three ports	32.9	35.2	33.1	28.1	22.3
New York.....	45.9	45.6	45.2	42.6	43.2

Thus we see that the three ports south of New York taken together exported a considerably smaller proportion of the total breadstuffs exports of the United States in the last two years than previously, and that the gain of New Orleans was much less than the loss of Philadelphia and Baltimore. If this has not prevented a slight decrease in the percentage exported from New York, it has been because of the larger production and exports of the Pacific coast, which have brought down somewhat the percentage at all Atlantic ports.

The fact is that there is no indication whatever, so far, that New Orleans is becoming or will become a formidable competitor of New York for the grain-exporting trade. It does get some grain that New York might have got had the port of New Orleans been more difficult of access; but most of the New Orleans receipts are for domestic consumption, and they come from parts of the country which are for the most part well settled, and where production does not increase rapidly. The country where grain production is increasing most rapidly ships almost nothing to New Orleans, but to New York and Boston chiefly, and, as we have pointed out heretofore, Boston has become a much more formidable competitor of New York than any of the other three cities, or perhaps all of them taken together. It competes successfully with New York for the great and growing flour exports, for the provision exports, and, more important still for a commercial city, for the imports.

The lesson which Governor Cleveland endeavored to enforce by his statistics, however, was a thoroughly good one, namely, that New York merchants ought to take pains to have their city represented in the State Legislature by men of character and capacity, and not leave a gang of venal politicians to represent the great commercial interests of the great commercial city of the continent.

Record of New Railroad Construction.

This number of the *Railroad Gazette* contains information of the laying of track on new railroads as follows:

Allegheny Iron Co.—This company's road has been completed from the Chesapeake & Ohio near Covington, Va., to Dolly-Ann Furnace, 5 miles.

Burlington & Northwestern.—Extended westward to Okaloosa, La., 14 miles. Gauge, 3 ft.

Grand Trunk.—This company's *Michigan Air Line* is extended from Stockbridge, Mich., westward to Jackson, miles.

Louisville, Evansville & St. Louis.—A branch is completed from Mott, Ind., south to Corydon, 9 miles.

Vicksburg, Shreveport & Pacific.—Extended westward to Choudrant's, La., 5 miles. Gauge, 5 ft.

Union Pacific.—This company's *Oregon Short Line* is extended from Caldwell, Idaho, north by west to St. Paul, 30 miles.

Wisconsin, Iowa & Nebraska.—Extended from Baxter, Ia., southwest 20 miles, completing the line between Marshalltown and Des Moines.

This is a total of 102 miles of new railroad, making 5,819 miles thus far this year. The total new track reported in our columns to the corresponding date for 12 years past has been as follows:

	Miles.	Miles.
1883.....	5,819	1,977
1882.....	9,574	1,970
1881.....	7,353	1,875
1880.....	5,624	1,874
1879.....	3,445	1,873
1878.....	2,207	1,872

The statements include *main track only*, no account being taken of second tracks or other additional tracks or sidings.

THE CANADIAN PACIFIC RAILWAY, it is reported, next spring will run regular immigrant trains from Montreal to Algoma Mills, on Lake Nipissing, in connection with its steamer line from Algoma Mills to Port Arthur, on Lake Superior, and trains from Port Arthur to Winnipeg, by which it will carry passengers for \$10 each, and in about

the same time as that of emigrant trains from Montreal to Chicago. The distance from Montreal to Algoma Mills is about 400 miles; from Port Arthur to Winnipeg, 485 miles; while the steamer route from Algoma Mills to Port Arthur is about 530 miles. The route is much more direct than any all-rail line can be made, but its entire length is about 1,365 miles. The regular immigrant rate from New York to Chicago is \$13, the distance being 912 to 980 miles, according to the route. From Chicago to Winnipeg is 867 miles. From Montreal by the shortest all-rail line to Winnipeg (by the Grand Trunk to Chicago) is 1,674 miles. The Canadian Pacific steamers will only have to sail the 530 miles to Port Arthur in the time required to travel 840 miles by rail on the other route to make as good time between Montreal and Winnipeg as is made by the all-rail route—and this ought to be easy.

The Canadian Pacific has a motive for making a very low rate from the seaboard to the Far West which no railroad from an Atlantic port has had before. Its system is chiefly in the West, and it has there an enormous land grant. Neither land nor road can be profitable until this territory is peopled and made productive. The grain raised by these people for sale, and the supplies purchased by them, the railroad may expect to carry, not only over the lines west of Winnipeg, or the 435 miles from Winnipeg to Lake Superior, but over the 1,265 miles from Winnipeg to Montreal. No land-grant road in the United States has ever had a line which gave it so long a haul, or anything like it, from a great body of fertile land.

It has been decided to open for settlement a wide belt of land along the Dakota border in the Dominion which hitherto has been withheld, and it is expected that there will be a great rush of settlers to secure these lands, which are at a considerable distance south of the main line of the Canadian Pacific, but may be reached by branches.

One effect of this very low rate is likely to be, it would seem, that the Grand Trunk, heretofore the chief carrier of Manitoba immigrants, should cease carrying them altogether. Even if it should be willing to carry them to Chicago for nothing, the roads northwest of Chicago would hardly consent to carry them the 867 miles to Winnipeg for \$10. The Grand Trunk, it is true, might make a lake-and-rail route, which would enable it to deliver the immigrants at Duluth at small cost, while from Duluth the Northern Pacific, in connection with the Manitoba, makes a line 470 miles long to Winnipeg. But none of these roads have much motive for making a rate to Manitoba which does not yield a direct profit. The St. Paul & Manitoba will, doubtless, profit by the settlement of the British Northwest, though probably not much now that the Canadian Pacific affords a direct outlet as heretofore. If the rate were a competitive one, designed to divert the immigrant travel from other roads to the Canadian Pacific, it would doubtless be considered hostile to the other trunk lines as well as to the Grand Trunk, but it is so manifestly made without expectation of bringing any direct profit to the Canadian Pacific that it is doubtful if it causes any ill feeling.

The immigrants to Manitoba come chiefly from Canada and Great Britain, very few from the United States. Those who emigrate from Canada go chiefly from country on Grand Trunk lines; and of those from England by far the greater number, we believe, arrive at Montreal, so that American trunk lines are not likely to be much affected. The Michigan Central formerly carried a large part of the emigration from Canada, but it probably lost most of this last season. The lines northwest of Chicago, however, have had substantially the whole of the Manitoba immigration, whether from Canada or Europe, and the loss of it will make a considerable difference in their passenger earnings.

THE MARIETTA & CINCINNATI RAILROAD (now the Cincinnati, Washington & Baltimore) is the subject of an article by an English investor, who complains that its manifold financial difficulties and the great losses of those who invested in it must have been due to the stepmotherly conduct of the Baltimore & Ohio, which has always controlled it. He cites as evidence the increase of 38 per cent. in the earnings of the Baltimore & Ohio from 1871 to 1881, while on the Marietta & Cincinnati the increase was but 14 per cent., but forgets to note that during this period the Baltimore & Ohio added 78 per cent. to its mileage; the Marietta & Cincinnati 13 per cent. From 1873, when the Baltimore & Ohio's "main line and branches" were 497 miles, to 1881, when they were 593 miles, the earnings of this part of its property decreased from \$12,253,000 to \$11,122,000, while the Marietta & Cincinnati's decreased only from \$2,127,000 to \$2,120,000.

This critic says it is inexplicable that the Marietta & Cincinnati should have shown no development whatever, and intimates that the road has been worked for the benefit of the Baltimore & Ohio at the expense of its own share and bondholders. This is a charge that is often made in England, those who make it, apparently, supposing that some arbitrary division of a through rate may be made, giving one road in a line a high price and another a low one for carrying the traffic, and ignorant of the "pro-rating" rule which governs traffic over all the trunk lines and their western connections this side of Chicago and St. Louis, which causes the controlled road to get just the same proportion of the rate as any other road in the line.

The Marietta & Cincinnati was unprofitable to its proprietors because, in the first place, it was costly, its fixed charges for interest and rentals amounting to \$1,288,000 (\$4,100 per mile) before the late reorganization, to say nothing of the \$14,000,000 stock, while its gross earnings have never exceeded \$7,600 per mile, and its net earnings have been from

\$720 to \$1,576 per mile. The fact is that in spite of the great expectations entertained of it when it was built, it is a road of light traffic, for a trunk line to Cincinnati. When its passenger and tonnage mileage were last reported, in 1877, they were at the rate of 103 passengers and 488 tons of freight each way daily over the whole length of the road. The earnings have increased more than one third since 1877, and the traffic still more, doubtless; but for a trunk line with a small proportion of branches the traffic is still small—small in comparison with the 410 passengers and 2,900 tons of freight daily over the Fort Wayne, for instance. There are no large towns on the road except Cincinnati, and its local traffic therefore is not great. That the road has not been managed in the best way may all be very true, and it is certainly true that it has given an extremely poor return—often no return at all—to those who have invested their money in it; but it is not a property that can be expected to make the large profits which were required to meet its fixed charges under the old organization, and the best kind of management could not have made it do so. It has always been the Baltimore & Ohio's sole route to Cincinnati, and its own interests have compelled the latter to cultivate business by it.

CHICAGO THROUGH RAIL SHIPMENTS EASTWARD for the week ending Nov. 21 for four successive years have been:

	1880.	1881.	1882.	1883.
Tons.....	53,096	49,421	50,401	53,850

The shipments this year were thus 3,449 tons (7 per cent.) more than last year and 9 per cent. more than in 1881, but only 1½ per cent. more than in 1880.

The percentage of the total shipments carried by each road this year and last was:

	1883.	1882.		1883.	1882.
C. & Gd. Trunk.....	12.4	15.3	Fort Wayne.....	21.3	17.1
Mich. Cen.....	17.9	24.7	C. St. L. & Pitts.....	12.9	18.2
Lake Shore.....	11.4	18.2	Balt. & Ohio.....	5.7	6.5
Nickel Plate.....	8.1	...	Chic. & Atlantic.....	10.3	...

The most notable feature this year is the very small percentage going by the Lake Shore; the three Vanderbilt roads together took 37.4 per cent. of the whole, against the 43½ per cent. to which they are entitled; the two Pennsylvania roads carried 34.2 per cent., against their allotted 27½.

For seven successive weeks the shipments this year have been:

	Oct. 7.	Oct. 14.	Oct. 21.	Oct. 28.	Nov. 4.	Nov. 11.	Nov. 18.	Nov. 25.
	43,723	44,926	43,721	44,083	48,769	48,300	53,850	...

The increase over the previous week is large. There was a similar increase at this time last year.

For the four days ending Nov. 25, being the last days of the 25 cent. rate, the through shipments were 35,306 tons this year. This includes one Sunday, so the time may be considered but half a week, which makes the shipments at the rate of 70,612 per week, which has been equalled in but one previous week of this year (the first week of March), in five weeks of 1882, in but one week of 1881 (the first of the railroad wars), and in two weeks of 1880.

Of the shipments for these four days 13.7 per cent. went by the Chicago & Grand Trunk, 15.1 by the Michigan Central, 10.2 by the Lake Shore, 6.3 by the Nickel Plate, 19.6 by the Fort Wayne, 14 by the Chicago, St. Louis & Pittsburgh, 4.5 by the Baltimore & Ohio, and 16.6 by the Chicago & Atlantic.

The next report will be for the last five days of November, when the shipments were at the new advanced rates, which will tend to reduce shipments. Last year the rates were not advanced until Dec. 1, and the expectation of the advance tended to increase shipments down to the end of the month. They were, in fact, very large, but this did not prevent the December shipments from being very large too.

The incomplete report of through and local shipments of flour, grain and provisions for the week ending Nov. 24 gives the total as 55,074 tons, against 41,027 tons in the corresponding week of last year and 52,048 in the previous week of this year. The flour shipments were much less than last year; the grain and provision shipments much greater.

The report (also incomplete) of these through and local shipments for the week ending Dec. 1 gives the total as 67,492 tons, against 46,538 tons in the corresponding week of last year and 55,074, as we have just seen, in the previous week of this year. This week ending Dec. 1 was the first week of this advanced rate, and it may seem strange that it should show such a very great increase over a week when rates were lower. But no doubt a very large part of the shipments reported for the last week—probably the largest part—was billed at the old rates from points west of Chicago, or even at the Chicago elevators or packing houses, but did not reach the several roads to the East until last week. It is usually the case that a very large proportion of the shipments from Chicago the first week the rates are raised are shipped at old rates. Last year the shipments for the last nine days of November, which were the last days of the 25-cent rate, were at the rate of 57,206 tons per week, and in the first week of December—the first of the 30-cent rate—but 23,970 tons were billed at that rate. What the total shipments were in just that week we do not know; but for the week ending Dec. 9 the through and local shipments were no less than 50,933 tons.

CANAL GRAIN SHIPMENTS FROM BUFFALO have a special interest this year, because it was the first season of the free canal, which has relieved the boatmen from a payment of just about one cent per bushel, and so enabled them either to carry for a less price than heretofore, or to make a larger profit. Actually, it is reported, the average rate received has been nearly a cent a bushel more than last year, so that

the boatmen must have made a great deal more than then, when, however, their profits were almost nothing. There has been a large increase over last year in the shipments by canal, and this is commonly attributed to the abolition of tolls; but what possible effect this could have had upon shippers when they had to pay more and not less than before the abolition, we do not understand. The increase from 29,716,000 bushels last year to 42,600,000 this is certainly a very great one; but, perhaps, if we look to the business of years previous to 1883, we shall not find this season's shipments so remarkable. For 12 successive years the Buffalo shipments of grain by canal have been:

Year.	Bushels.	Year.	Bushels.
1872.....	47,861,530	1878.....	58,815,672
1873.....	51,432,182	1879.....	54,206,891
1874.....	41,337,706	1880.....	72,069,361
1875.....	35,782,563	1881.....	31,175,387
1876.....	27,879,520	1882.....	29,715,411
1877.....	44,308,119	1883.....	42,628,774

The canal then carried 13 millions less than last year, when there was little grain (especially corn) for anyone to carry much of the season, and 11½ millions more than 1881 when the railroads by carrying for nothing diverted grain from the canal; but it carried 29½ millions less than in 1880, 11½ millions less than in 1879, 16 millions less than in 1878, and even 1½ millions less than in 1877, in which year the whole grain movement was exceptionally light until after harvest. The rail rates have been the same this year as last.

The canal grain movement this year, then, cannot be called a very large one. It is considerably below the average of the five years previous, which was 49,196,000 bushels in spite of the light shipments in 1881 and 1882.

Nevertheless the abolition of the tolls doubtless somewhat increased the canal shipments. It made the boatmen's business much more profitable than it had been, and doubtless prevented some from giving it up, though as, with the tolls, the profits would still have been greater than last year, we cannot be sure how much effect this had. But it may very likely have had a considerable effect on keeping up the stock of boats, and so will be felt hereafter more than this year.

A HEAVY PASSENGER TRAFFIC was that over the New York elevated railroads on Evacuation Day, Nov. 26. The number of passengers carried and the receipts for carrying them were, taking the different lines from the east to the west side of the city, in their order:

	No. passengers.	Receipts.
Second avenue.....	30,393	\$2,137.45
Third avenue.....	188,502	15,235.00
Sixth avenue.....	105,408	8,877.10
Ninth avenue.....	37,345	3,009.95

Total 361,648 \$20,269.50

In 1881-82 the average number of passengers carried daily on all these roads was 236,606, so that the Evacuation Day travel was 125,042, or 53 per cent., above this average. But not only was the travel exceptionally large, but the average rate received was exceptionally high, for neither going to nor returning from the observation of the ceremonies could be done conveniently in "commission hours" at the 5-cent rate. The average rate actually received was 8.09 cents, while for the year 1881-82 the average was 6.86 cents. The difference in the rate alone was equivalent to an additional profit of \$4,450 on the day's business.

The gross earnings of the Third Avenue line for this single day were at the rate of \$1,792 per mile. A great many railroads in this country do not make as much in six months, and there are several whose yearly earnings are no greater; but the elevated railroad passengers are carried at very low rates when their journey is of considerable length.

The profit on the day's business was doubtless still larger in proportion to the average than the gross earnings, not only because the average fares were higher, but because the increase in travel was carried with little increase over the average daily expenses. It is not possible to add many to the number of trains over the two busiest lines, because there are ordinarily nearly as many trains on them as can be run with safety. Thus the larger part of the increase in traffic, we may assume, was provided for simply by carrying more passengers in a train, which added but an insignificant amount to the working expenses.

We may compare the great traffic on the Third and Sixth avenue lines Evacuation Day with the heaviest traffic yet had on the Berlin City Railroad, which extends through the centre of the city from east to west, has four tracks, and serves as the city entrance of through and suburban trains for the railroads east and west of Berlin, as well as for city travel. This heaviest travel was on Whitsunday and Whitmonday this year, and amounted for the two days to 152,587 passengers, or 76,294 per day. The road is seven miles long, a mile and a half shorter than the Third Avenue road. It can bear much larger trains than any of our elevated railroads, though how much its capacity is increased by that fact it is hard to say, as it would be very dangerous to run very heavy trains with the intervals of two minutes or less, common in the busiest hours on the New York roads.

THE CHICAGO, BURLINGTON & QUINCY seems really intending to build a line to St. Paul, which will probably extend for most of its length near the east bank of the Mississippi. The newspapers talk of its locating a line between Clinton and Galena along the river; but this would not be a short route for it to reach Galena. Forreton, where its Chicago & Iowa road strikes the Illinois Central, is about as near to Galena as Clinton is, and is about 30 miles nearer to Chicago. But a river line would give it a better route between St. Paul and St. Louis and St. Paul and Kansas City,

It does not appear necessary that the Chicago, Burlington & Quincy should build any road south of Dunleith in order to make a line from Chicago to St. Paul. If the Illinois Central can be satisfied to use 120 miles of the Burlington's road as an outlet to 483 miles of line west of Forreston, the Burlington ought to be satisfied to use 78 miles of the Illinois Central, to connect it with 250 miles new road between Dunleith and St. Paul.

The project is an acknowledgment of the great and growing importance of the Northwest. The Burlington road was virtually first in Kansas City, long the chief outlet of the country where traffic grew fastest, was early at Council Bluffs, and by its system of roads in Nebraska became the chief beneficiary of the growth of Nebraska. It is comparatively late in starting for St. Paul and Minneapolis, but doubtless early enough to reach them long before their recent rapid growth becomes moderate only.

With such a line completed the Burlington would have a western terminus at Denver, a southwestern terminus at Kansas City, and a Northwestern terminus at St. Paul, the latter place being about 400 miles north and 70 miles east of Kansas City; besides a southern terminus at St. Louis.

THE LAKE SUPERIOR IRON ORE SHIPMENTS have been much less this year than last (21 per cent. less), and so much has been said of the bad condition of the business that one might suppose that the shipments had been positively small. This is far from being the case, however. For seven successive years the shipments have been:

Year.	Tons.	Year.	Tons.
1877.....	965,057	1881.....	2,199,477
1878.....	1,101,206	1882.....	2,810,511
1879.....	1,303,679	1883.....	2,218,750
1880.....	1,850,625		

Thus the large decrease this year after all leaves the shipments substantially the same as in 1881, when they were larger than ever before. The shipments having increased uninterruptedly from 1877 to 1882, and being nearly 200 per cent. greater in the latter than in the former year, it can hardly be matter for surprise that at last there should be a reaction. After all the shipments this year are 20 per cent. more than in 1880 and 70 per cent. more than in 1879.

In this, as in many other enterprises in this country, the people engaged in it, or many of them, seem to prepare for a production, at the time the consumption is growing fastest, as if they could safely count on the continuance of that rate of growth forever. Perhaps if they had been asked last year if they expected that, instead of the 2,800,000 tons taken that year, 8,400,000 would be required in 1887—increasing at the same rate for the five years following as for the five years preceding 1882, they would have acknowledged that to be an extravagant expectation; and yet many of them were preparing to increase their output at a rate which would soon double or treble the total production. This is especially likely to be the case with new mining and some other properties, from which no income can be obtained until they are opened. The owner, anxious to make some profit from his property, must increase the aggregate production in order to do so, and if it is a time of decrease in consumption, the effect on the market price is likely to be great and sudden. This has been exemplified on a large scale in the anthracite coal business. Even now it seems that some mines are being opened in the Lake Superior region, and the capacity of old ones increased.

The Lake Superior mines have increased their production within the past ten years much more than in proportion to the increase in pig-iron production of total ore consumption because their ore is peculiarly fitted for making Bessemer steel, and is accessible by lake and short railroad hauls to the chief iron-making districts. The decrease in shipments this year may have been much more than the decrease in consumption, because there was a great stock on hand at lower lake ports last year and a small one this year. It will be interesting to see whether, if we have a period of reduced iron production now, there will continue to be an increase in the proportion of this ore used, as there was after 1873—whether Lake Superior can underbid the other ore districts when there must be a reduced production somewhere.

THE HOOSAC TUNNEL LINE, formed by the Fitchburg Railroad, the Troy & Boston, the New York Central and the New York Central's connections west of Buffalo, will be broken up by the withdrawal of the New York Central. The contract of the freight line required three months' notice of withdrawal, and the New York Central gave the required notice of its withdrawal March 1. It will also cease to haul through passenger cars for this route after December.

By far the larger part of the Central's traffic has always gone by the Boston & Albany, but it has done business with the tunnel route since its completion. The Erie, connecting by the Boston, Hoosac Tunnel & Western instead of the Troy & Boston, and its first Boston line by the tunnel route, but has latterly interchanged largely and perhaps chiefly with the New York & New England. The Erie seems to prefer a multiplicity of connections, the New York Central concentration, though the Erie has not until recently had much room for choice.

The West Shore will doubtless make a line with the Tunnel route, but will connect with the Hoosac Tunnel & Western and not with the Troy & Boston, which, without the New York Central, would seem to have its occupation gone. It has had no profits to spare, its fixed charges having exceeded its net earnings in 1881 and 1882. But it is not yet plain how the West Shore will secure traffic for New England. The Grand Trunk will doubtless bring it New York traffic, but the Grand Trunk has a line of its own to New

England, and will hardly be disposed to take traffic from that and give it to another line between Buffalo and Boston.

A New York paper has intimated that the New York Central withdraws from the Tunnel Line to "cripple" the new West Shore road, soon to be open between Buffalo and Albany. It is a little difficult to understand how the West Shore can be crippled or otherwise than benefited by the Central's turning away from itself a traffic which the West Shore wants. If the Central remained in the line, the Massachusetts roads in the line would have been compelled to give it part at least of the traffic which they carry westward; now that the Central is out they can give the whole of its share to any road that may take its place.

THE INCREASE IN THE NORTHWESTERN GRAIN MOVEMENT which we last week said was seen in the receipts for the week ending Nov. 17, grew again in the following week, when they were very much greater than ever before known at this season, and nearly 50 per cent. larger than last year when they were larger than ever before.

For six successive weeks the receipts of the Northwestern markets have been:

Week ending	Oct. 20.	Oct. 27.	Nov. 3.	Nov. 10.	Nov. 17.	Nov. 24.
	6,259,317	6,256,619	6,020,059	5,942,156	6,448,480	7,208,607

Thus in two weeks there has been an increase in the receipts of no less than 1,266,451 bushels, or 21 per cent., at a time when receipts are usually decreasing.

It is noticeable, again, that a very large proportion of the receipts are wheat, and in spite of the short crop the receipts of this grain for the last week are very much larger this year than in any other—nearly one-half larger than last year, when the crop was enormous, and 43 per cent. more than in 1880, when also there was a great crop.

We might say that these large receipts at the Northwestern markets were to secure shipments to the East before the rates were advanced, Nov. 26. This sounds plausible, but it is not confirmed by the course of rail shipments from the Northwestern markets, while the lake shipments have greatly fallen off. For the six weeks of the receipts chronicled the rail shipments of these markets have been:

Week ending	Oct. 20.	Oct. 27.	Nov. 3.	Nov. 10.	Nov. 17.	Nov. 24.
	2,226,790	2,127,925	2,026,253	2,375,648	2,371,186	2,427,292

Thus the increase in shipments has been but a very small part of the increase in receipts, and there has been, we may add, a considerable increase in the stocks at the Western markets, which now are exceptionally large, and which must come forward by rail or wait for the opening of lake navigation next spring.

BRITISH LIVE STOCK TRAFFIC seems to be quite stationary. The *Railway News* has recently collated the receipts for carrying cattle by fourteen railroads in the United Kingdom for the last seven years, intending to show the effect on the traffic of the measures taken to prevent the spread of contagious cattle diseases. It appears that the aggregate receipts from this traffic were greatest in 1882, when they were £1,282,907, but only £51,959 (4 per cent.) more than in 1876. But they were smallest in 1881, namely, £1,096,614, which is 6 per cent. less than the year before, and 11 per cent. less than in 1876. The average for the first three years were £1,227,983; for the last four years it was £1,173,078. The business may be said to produce less than \$6,000,000 per year. The fluctuations from year to year on some of the roads are greater in proportion than in the total, but in few cases where the traffic is considerable has there been an increase or decrease of as much as 10 per cent. in a single year. On the London & Northwestern the cattle earnings fell 7 per cent. from 1878 to 1879, 3 per cent. from 1879 to 1880, 4 per cent. from 1880 to 1881, when it was £191,961, and £32,600 (14 per cent.) less than in 1878; but in 1882 there was an increase of £38,018 (20 per cent.), more than making up for the continued decrease of the four years previous. This road carries nearly twice as much as any other, in 1882 having 27 per cent. of the cattle earnings of the English roads, the Great Western following with 14 per cent. But the London & Northwestern's earnings of \$1,120,000 in the year when they were largest, not to say the Great Western's \$585,000, probably are considerable exceeded on some of our railroads between Chicago and the seaboard.

MR. JOHN F. DESMAZES, Auditor of Freight Accounts of the New York Central & Hudson River Railroad Company, died at his residence in Brooklyn, N. Y., on the 3d inst. after a long illness. He became connected with the Hudson River Railroad Company in 1852, when the late E. D. Morgan was President, and continued through all the successive administrations of that company; and upon the consolidation of the Hudson River with the New York Central was appointed by Mr. Vanderbilt to the same position over the entire line. He inaugurated a system of freight accounts on the Hudson River road, which is considered by many the simplest and most perfect of any in the country, and upon consolidation extended it to the Central Division, and it has remained in successful operation ever since, and has also been adopted by numerous other companies whose officers have all testified to its practical and complete adaptability to the service. Thirty-one years of continuous and meritorious service with one corporation, with no question ever raised as to his competency, honesty or integrity, needs no other praise so far as official acts are concerned. Such a record is sufficient. His personal qualities were emblematical of his pure Christian life and character, and his natural courtesy, warm friendship and kindly thoughtfulness for those about him endeared him closely to all. The

company has lost a most valuable and efficient officer, and those connected with the company a sincere and steadfast friend. His was indeed "the best-conditioned and unwearied spirit in doing courtesies."

BIG CAR-LOADS have become common, we know, but we were not prepared to hear that they had grown so enormous as the *Chicago Tribune* makes them. It says that, "Formerly a common car-load was 10 tons. Now this has gradually been increased to 25,000 tons." As Artemus Ward would have said, "surely, this is too much." The *Tribune* says that "it is claimed that no more than 15,000 to 20,000 tons should be allowed to be loaded into a car." Truly this is a safe claim to make.

It is rather puzzling to guess what the *Tribune* meant to say. It could hardly be pounds that should go in place of tons, for probably no one would propose to limit a car-load to 15,000 or 20,000, and few if any would limit it to 25,000 lbs. even. There are too many cars successfully carrying 40,000 lbs. to permit that. It is true that cars built to carry 20,000 lbs. (scarcely any 8-wheeled cars have been built to carry less for many years), do not always stand loads of 30,000 and 40,000 lbs. very well; and the change that is needed is to avoid putting the big loads in the weak cars. The *Tribune*, however, says that the big loads are causing rails to break very frequently. If 40,000 lbs. of load and 20,000 lbs. of car on eight wheels break the rails, what will 100,000 lbs. of locomotive on the same number of wheels do? We shall not easily get a car-load heavy enough to strain the rails as a locomotive does. It looks as if the *Chicago Tribune* didn't know what it was talking about.

THE MARKET FOR IMPORTED RAILS, we said recently, might continue at Gulf ports and on the Pacific coast, when imports were impossible by way of Eastern ports. This statement is very strongly confirmed by the report, just published, of the Bureau of Statistics giving the quantities of steel rails imported at each port for the year ending with June last, as follows:

	Tons.		Tons.		Tons.
Bath, Me.....	1,535	Mobile.....	6,902	San Francisco.....	57,167
Boston.....	240	N. Orleans.....	43,399	San Diego.....	3,498
New York.....	3,333	Galveston.....	5,103		
Baltimore.....	1,392				
Beaufort, N. C.....	2,171				

Atl. ports... 8,571 Gulf ports 55,904 Pacific ports 60,065
Thus out of 125,140 tons in all, only 6.8 per cent. came to Atlantic ports, 44.7 per cent. to Gulf ports, and 48.5 to Pacific ports; and more than four-fifths of the whole came to the two ports New Orleans and San Francisco.

THE TRUNK LINE BOARD OF ARBITRATION, which is to decide finally what percentages of the east-bound freight the several trunk lines shall have, and also what shall be the distribution of the Chicago shipments among the eight roads to the east which connect with the trunk lines—this board has been completed by the selection of Mr. Hugh Riddle, late President of the Chicago, Rock Island & Pacific Company, and of Mr. John C. Gault, late General Manager of the Wabash—men of the highest rank in the railroad world, both retired from active service, and universally respected for character as well as ability. They will sit with Mr. Adams, the permanent Arbitrator, examine the records of the course of traffic heretofore, kept in Mr. Fink's office, and the arguments presented by the several companies interested, and decide the extremely complicated question in the light of these facts and arguments.

THE DECREASE IN TRANSPORTATION RATES SINCE 1872, says Mr. Joseph Nimmo, Jr., the Chief of the Bureau of Statistics, has been the chief cause of the increase in the value of our exports of breadstuffs from \$84,586,273 in 1872 to \$208,040,850 in 1883, and of the increase in the value of the exports of provisions from \$59,696,670 to \$107,388,287, and he adds that "The United States now enjoys the advantages of the cheapest and most efficient system of internal transportation of any country on the globe."

A Quiet Passenger.

A big, burly, good-natured aggressive man entered a Charlestown, Mass., horse car yesterday, accompanied by a huge turkey, and, having seated himself, he placed his turkey in a sitting position on the seat beside him. The car filled rapidly, and, although several ladies were compelled to stand, the turkey kept his seat, guarded by its burly owner. When the conductor came through the car he noticed the turkey and, addressing the man, said: "You will have to take that turkey up."

"What for?"

"To let some of these people sit down. You can't keep him on that seat."

"What's the reason I can't?"

"Because these people are as much entitled to a seat as your turkey."

"Well, who said they weren't? This turkey ain't bothering any one and I'd like to see any one bother him."

"You'll have to take him up, anyhow; he isn't a passenger."

"No, he isn't. He's a deuced sight better than the average passenger you carry. He's clean, he ain't telling all he knows, he isn't drunk, he don't smell of tobacco, and he don't spit all over the floor."

By this time all the passengers were laughing, and the peculiar appearance of the turkey, as he sat bold upright with his legs spread out on the seat, added to the merriment.

The conductor, annoyed at the laughter, excitedly said: "Every seat in this car that's occupied has got to be paid for; now you take that turkey up, or get out."

"I won't do it. Here's a ticket for him, and see that you punch it. I guess it don't make much difference to a railroad company what kind of an animal occupies a seat so long as its paid for." So the turkey kept his seat, to the great enjoyment of the passengers.—*Exchange*.

Radial Drill and Axle Lathe by the Machine Tool Works, Philadelphia.

The engravings represent two machines by the Machine Tool Works of Philadelphia, which were exhibited in the Chicago Exhibition of Railway Appliances. They represent many notable and original features well worthy of attention and examination. Some of these can be seen in our illustrations, while others cannot be displayed without detail drawings.

Fig. 1 is a car and locomotive axle turning lathe, very heavy and powerful, and apparently capable of doing its work to good advantage. The design of the machine is neat and simple, with one or two new devices. For instance, there is a pulley upon the main spindle, and the driving gears arranged to slide out of contact, and by means of this pulley, driven by a belt from the counter, the axle can be made to rotate with a sufficient velocity for filing, so that those who prefer to file their axles in the lathe can do so. This arrangement is also useful for turning and truing the centres. It has also three changes of feed motion, which is an unusual number for an axle lathe.

Fig. 2 is a 6-ft. arm universal radial drill. In this the broad base-plate and angel table afford perfect facility for securing work to be drilled or bored. The rotary column is fastened down upon a base of ample dimensions at the height of the table, that is, as high as possible, thus securing the greatest possible stiffness of structure and allowing the driving gear, which is situated in the base, to be connected in a very simple manner with the radial arm and spindle. The radial arm is raised and lowered upon the column by power, the will of the workman, and rotated upon its axis by means of convenient worm-gearing. The drill-carriage also rotates upon its axis at right angles to the radial arm. These motions, together with the rotation of the column, enable the machine to drill and bore in any direction whatever. The feed-gearing of this machine is very complete and perfect as well as compact. It has six changes which can be instantly varied while drilling, and is provided with an index wheel, a new feature, by which the changes of feed are affected, and also the degrees of feed clearly indicated. The combination also of this compact feed-gearing with the quick return motion, and the rapid change from quick to slow motion and *vice versa*, is of great value in practice. Its completeness extends even to providing a rack for the wrenches and handles, and the workmanship is excellent.

THE SCRAP HEAP.

Locomotive Building.

The Rogers Locomotive Works in Paterson, N. J., have completed an engine with 17 by 24 in. cylinders and 5 ft. drivers for the Richmond & Petersburg road. These works have recently completed the order for 100 engines for the New York, West Shore & Buffalo road.

The new McQueen Locomotive Works, at Schenectady, N. Y., are well under way, and are located near the shops of the Jones Car Manufacturing Co., and a short distance from the New York Central and Delaware & Hudson Canal road tracks. The buildings are of brick, and comprise a machine and erecting shop, 300 by 122 ft., a blacksmith and boiler shop, 400 by 72 ft., and a foundry, 200 by 60 ft. The company has a capital of \$300,000. Its officers are as follows: Charles Stanford, President; Wm. McCann, Treasurer; Executive Committee, Walter McQueen, late of the Schenectady Locomotive Works, Walter Jones and John McInroe; Superintendent of Works, H. Watkeys, from the New York Central road.—*Car-Builder*.

The Schenectady Locomotive Works in Schenectady, N. Y., are filling orders for the Chicago & Northwestern and the Lake Shore and Michigan Southern roads.

Car Notes.

The Youngstown Car Manufacturing Co. in Youngstown, O., is building a number of box cars for the Pittsburgh, Cleveland & Toledo road.

The St. Charles Car Co. in St. Charles, Mo., has taken a contract to build 500 box cars for the Missouri Pacific road.

The Barney & Smith Manufacturing Co. in Dayton, O., is building some box cars for the Hot Springs Railroad in Arkansas, which are fitted with Finlay's centre-support truck. These cars are of 3 ft. 6 in. gauge, but are expected to carry 25 tons each.

The Lehigh Car Manufacturing Co., at Stenton, Pa., is building 10 cars of improved construction for the transportation of horses. They are fitted up with stalls for 15 horses each, with conveniences for feeding and watering, and are virtually stables on wheels. They are being built for Mr. Isaac Dahlman, of New York, and are to be run on the New York, Lake Erie & Western road. The company is also building a second lot of 50 ore cars for the Uruguay Iron Co., San Diego, Cuba, and has recently built 4 cars for the transportation of theatrical scenery for the proprietors of two New York theatres.—*Car-Builder*.

The Terre Haute Car & Manufacturing Co. in Terre Haute, Ind., has taken a contract to build 500 coal cars for the Missouri Pacific road.

Bridge Notes.

Clark, Reeves & Co., in Phoenixville, Pa., have just completed the new iron bridge over the James River at Richmond, Va., for the Richmond & Petersburg road. It has 15 spans, varying in length from 140 to 153 ft. The contract was taken in April last.

The Berlin Bridge Co. in East Berlin, Conn., is building an iron highway bridge of 215 ft. span for Warren County, Ohio.

The Keystone Bridge Co. in Pittsburgh has just completed a new bridge over the Harlem River on Madison avenue in New York. It has a draw-span 300 ft. long, and two fixed spans of 200 ft. each.

Iron Notes.

The rolling mill of Summers Brothers in Struthers, O., is running full double turn on orders.

The Leighton Steel Works in Chattanooga, Tenn., started up Nov. 21. These works make steel by the Leighton process, and are the first works in the South in which crucible steel has been made.

The plan for the reorganization of Brown, Bonnell & Co. has apparently failed, and in Youngstown, O., recently, judgments to the amount of \$570,000 were taken by 33 creditors.

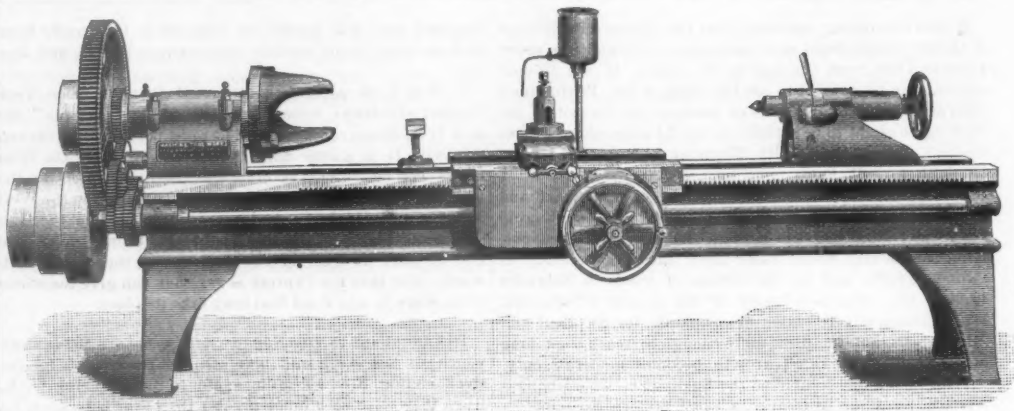


Fig. 1.

CAR AND LOCOMOTIVE AXLE LATHE.

By the MACHINE TOOL WORKS, Philadelphia, FREDERICK B. MILES, Engineer

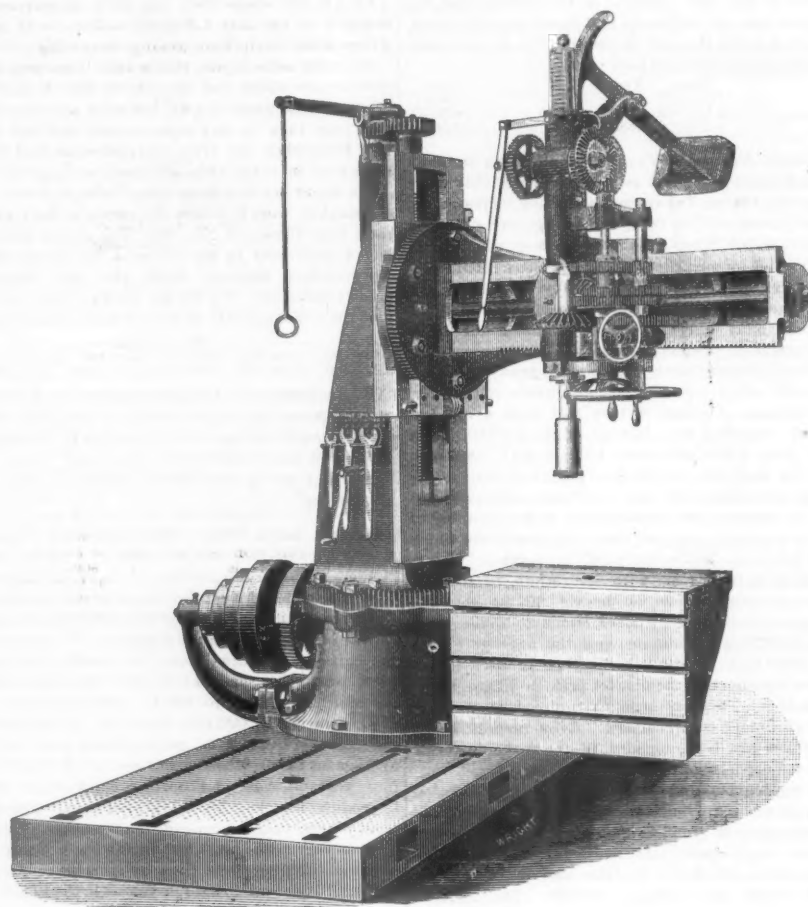


Fig. 2.

RADIAL DRILLING MACHINE.

By the MACHINE TOOL WORKS of Philadelphia, FREDERICK B. MILES, Engineer.

Chattanooga Furnace in Chattanooga, Tenn., is in blast, and is making 50 tons of iron a day.

Messrs. Coats & Brothers, owners of the Locust Point Rolling Mill in Baltimore, have closed their mill and suspended payment. Their liabilities are estimated at \$75,000; the assets, it is believed, will cover this amount, if time is given to realize them.

The Joliet Steel Co. has given notice that its works at Joliet, Ill., will be closed Dec. 15, and will not be started up again until there is some improvement in the trade.

Manufacturing Notes.

The Southern Scale Co. in Chattanooga, Tenn., has just completed a 40-ton track scale for the Memphis & Charleston road.

The Rail Market.

Steel Rails.—Quotations continue at \$35 to \$36 per ton at mill. Some large orders have been placed at these prices for spring and early summer delivery, but the mills are reported to be generally rather short of winter work. It has been reported that several orders had been taken at \$36, delivered in Chicago, which is below current quotations, as the result of a little difficulty between eastern and western rail makers.

Rail Fastenings.—The market is quiet and rather weak at \$2.55 to \$2.60 per 100 lbs. for spikes in Pittsburgh. Track-bolts are quoted at \$2.90 to \$3 per 100 lbs. for square nuts, and \$3.15 to \$3.20 for hexagon nuts. Splice-bars are 1.9 cents per pound, with light demand.

Old Rails.—Sales are reported at \$23 and \$23.25 per ton in Philadelphia for iron tees, and \$25 for double-heads. The market is not very active, but prices are firm.

Trial of the Rote Automatic Freight Brake.

An exhibition and test of the Rote automatic independent car brake was given Nov. 19, on the Strasburg Railroad, between Leaman Place and Strasburg, Pa., the brake having been fitted on a Pennsylvania Railroad gondola car for the

purpose of testing it. The trial is thus described by the Lancaster (Pa.) *Examiner*:

"The train consisted of an engine and three cars. Next to the engine was placed the car equipped with the new brake, then came a box freight car heavily loaded, and finally a passenger car. A portion of the flooring of the car immediately over the brake mechanism was removed, exposing to view of all within the car all of its operations while in motion. The inventor was on the car, explaining the brake to the spectators, but as its mechanism has been already fully described in these columns, it is unnecessary to repeat the explanation here; suffice it to say that during the trip over the road, which includes some heavy grades, one being about 70 ft. to the mile, the brake was put to every known test and responded so promptly that the spectators openly expressed their admiration of its perfect working."

"This brake belongs to the class popularly known as compression brakes, the brakes being applied by the compression of the draw bar when the speed of the engine is checked. An ingenious, yet simple device, controlled by the speed of movement of the car, automatically regulates or controls the brake-setting mechanism, rendering the latter operative or inoperative as occasion requires."

"The brake mechanism is inoperative while the car is at rest, but becomes automatically locked in operative position by the movement of the car when the latter is being drawn, and is ready to be applied when needed, as soon as a speed of about two miles per hour is reached."

"After the car has been at speed and the brakes are applied they hold until just before a complete stop is reached, when they are automatically released and the train is free to be immediately backed without first taking up the slack. The train does not move more than four or five yards after the brakes are thus automatically released, yet they are released before a complete stop is reached."

"It may be remarked here that the speed of the train may be restored at any time at the will of the engineer, the simple act of pulling out freeing the brakes."

A Lost Wheel.

A very singular accident happened to the engine that ran Erie train No. 8 over the Susquehanna Division last Friday. When the engine was being housed at Susquehanna, after its trip, it was noticed that one of the "pony" wheels on the left side was missing. This is the wheel on the forward truck of the engine, between the cylinder and the cow-catcher, and a chain is attached to the axle to hold the same from the track in case it breaks.

"That's very queer," remarked the engineer after he and his fireman had searched around the machine in a vain endeavor to hunt up the missing wheel. "It's very queer how that could get away, and we not notice it. I never heard of such a thing. Didn't feel a jar over the whole run, and we started with the consarned thing all right."

"Mebbe it's melted," suggested the fireman, who had been pretty busy during the run in keeping the fire in shape. "Wouldn't wonder a bit if it's melted. I know I felt like it all the way down, and if that thing ain't melted, where is it?"

"No, 'tain't melted," remarked the engineer soberly and reflectively.

"Well, mebbe it's one of them paper wheels, and has caught fire and burned up," remarked the hostler.

"If it's paper," remarked a roundhouse employe, "more likely it's been stolen by some tramp so's to wrap up his lunch in. Of course it'd be rather difficult to steal it while the train was running, but then a tramp's equal to any occasion."

"Or, if it's paper, likely it's not some newspaper reporter's cabbageed it to take notes on, while out looking up items," suggested another.

But none of those wise surmises settled the question as to what had become of the missing wheel, and so a telegram was sent back over the division to have it looked for. The train gang that followed No. 8 found the wheel a few miles from Great Bend. It had ploughed up the earth for some distance, and then embedded itself in the ground. The distance between Great Bend and Susquehanna is about 18 miles.—*Port Jervis Gazette*, Dec. 1.

A Runaway Locomotive.

As the engine "Ashmont" was backing off the Milton Branch of the Old Colony Railroad at Neponset station on the evening of Dec. 3, to connect with a train from Boston, it collided with the cars of the Milton train. The jar threw open the throttle of the already reversed engine, and it started in the direction of Milton, the engineer and fireman having jumped off. It ran as far as Mattapan, taking down the gates at Neponset avenue crossing, and, upon reaching Mattapan station, the terminus of the branch, dashed into a freight train, passing entirely through one car and smashing another. The engine was badly damaged. No one was injured.

Attempt at Train Robbery.

An attempt was made to ditch and rob a Memphis & Little Rock Railroad train 25 miles west of Memphis, on Monday afternoon, Dec. 3. Several spikes had been drawn from the rails and the switch displaced, but only one car left the track. When the train stopped four men, armed with shot guns, mounted the platforms and demanded that the doors should be opened. This was refused by the trainmen, who fired at the ruffians. The latter, after sending a shot at the engineer, disappeared in the woods.

Heating Street Railroad Cars.

It may be taken for granted that this fastidious age will not endure the dismal discomfort of unwarmed street cars much longer. They are not more dismal and uncomfortable than they were 20 years ago, but in that time people have made great progress in the work of making their environment agreeable, and they are growing more and more intolerant every day of the chill discomforts of an unheated street car in winter. In New York, where the complaints have been loud and long continued, the companies are attempting to meet the public demand, and several schemes for warming cars are under test. One method is by means of pipes under the seats filled with a chemical compound whose crystallization at a low temperature evolves heat. A second is by means of pipes filled with hot salt water; and a third is by means of small stoves under the cars, heating water in pipes. These several methods will cost, respectively, \$240, \$175 and \$200 a car. The indoor life of those classes of a large city's population who chiefly resort to street cars makes them more and more, every year, sensitive to cold. Winters are dreaded, and all appliances that can mitigate their rigors are in demand. The problem of warming street cars economically is a difficult one, and involves expenditures which the companies evidently are averse to. But it will have to be solved not only for New York, but for all large cities north of the Ohio River line. The most cheerless period of a winter day is the 15 or 20 minutes one spends in a street car, going from a residence to the business or shopping district. It is a hole in the day that must be stopped up.—*St. Louis Republican*.

The small stoves under the car, as used on the Second Avenue line in New York, are very well as far as they go, but they do not seem equal to severe weather. On the Third Avenue line in that city a number of the cars are fitted with ordinary cylinder stoves, burning anthracite coal, which are placed on one side at the centre of the car, with a shield around them. These seem to be the best warming apparatus in use, but if the fire is driven the seats directly opposite are apt to be uncomfortably hot. They are also open to the objection that the stove and shield take up at least two seats.

Identifying the Brakeman.

A slim young man, wearing a fur cap and a last year's ulster, stood with a lonesome look on his face in the waiting room of the Polk street depot, Chicago, the other evening. He thoughtfully measured with his eye the colored youth behind the lunch counter a few feet away. Then he climbed on a high stool by the counter and reached for a sandwich. He winked at the colored boy, and was instantly supplied with a cup of coffee. Three more sandwiches came within his grasp and disappeared one after another. Then he devoured a turnover and two hard boiled eggs. Another cup of coffee and a quarter of a mince pie finished the meal. Then the slim young man glided from his stool and said carelessly:

"What's the fillin' worth?"

"Seventy cents, sah," replied the waiter promptly.

"What!" cried the slim young man, "you mustn't charge me passenger rates, you know; I'm a trainman, remember."

"What kind of a trainman?" demanded the colored youth, suspiciously.

"Grand Trunk brakeman," responded the slim young man.

"Got to identify yo'self," suddenly said the waiter.

"Don't think anybody knows me here," said the other with hesitation.

"Show wa't yo' got in yo' pockets, den. Ebery trainman has a car-key or a train-book, or somethin' else along to identify hisself wid."

"Changed my clothes since the last run," said the slim

young man, growing pale. "You'll have to take my word for it."

"Yo' word's no good," said the waiter, contemptuously. "I'll give yo' one mo' chance. Call out de towns jus' 's if dis was a pass'n'g'r cab."

The slim young man threw back his shoulders, clutched the counter, and shouted:

"Battle Creek!"

"Niagara Falls!"

"Montreal!"

"Stop, sah; yo' is a cheat. No brakeman ebber call um dat way. Dis is wot dose towns is:

"Bricawic!"

"Nagowash!"

"Goa-r-r-eal!"

"Dere," concluded the waiter triumphantly, "if yo'd a called um dat way I'd let yo' off wid thutty-five cents. Seventy cents, sah; an' hurry up."—*Chicago Inter-Ocean*.

The Remains of an Old Bridge.

The remains of one of the oldest bridges in the world, that erected by Charlemagne over the Rhine near the close of the eighth century, have been met with by engineers at Mayence. It rested on 23 buttresses, and was eventually struck by lightning and burnt down to the level of the water. The engineers have been busy taking away its remains, and have already removed over 50 piles of five to six yards in length. The timber is well preserved, though nearly 1,100 years old; so well, indeed, that it is still fit for building purposes, while the iron, which was riveted to the posts, is also capable of being used, being covered by only a thin layer of rust.

Rules for Passenger Trainmen.

The following are among the rules for employes on the Terre Haute & Indianapolis road:

"Conductors of all passenger trains are expected to be at the depot at least one-half hour before the time of starting their trains, and see that the passengers are provided with seats, and their trains in proper order."

"All trains must be run under the direction of the conductor except when his directions conflict with these rules, or involve risk or hazard, in which case the engineer will be held equally responsible with the conductor. Conductors will be held responsible for the safe management of their trains, and for the proper behavior and performance of duty by their trainmen. They will not allow any person to ride in the baggage, mail or express cars, whether connected with the road or not, except those whose duties require them to be there."

"Rudeness or incivility to passengers will in all cases meet with immediate punishment. It is the duty of every person employed by the company to be civil and courteous to all with whom they come in contact, to answer inquiries properly, and to aid passengers and persons doing business with the road in every reasonable manner."

"Boisterous, profane or vulgar language is strictly forbidden on or about the passenger trains, and in the office and station buildings of the company. Civil, gentlemanly and quiet deportment is required of all persons employed by the company, in their intercourse with passengers, with the public and with each other."

The Brakeman.

No, my son, that gentleman in the azure clothing and gilt buttons is not a naval officer. He is a gentleman of leisure, of no profession, and without and above occupation. He spends his time on the cars, because he can there best serve his fellows. He is always doing some good act. At one moment he is locking the stove door to prevent the fire from going out; at another he is turning down the lights, to prevent the passengers from reading and thereby injuring their eyesight, and at the same time furnishing to all that rich perfume which the partial consumption of kerosene oil always affords; and anon he is playfully mystifying his fellow mortals by calling out the names of stations in language unintelligible and unknown; but his principal and pleasantest labor is to assist young ladies off the cars. It is estimated by statisticians that the average brakeman squeezes the arms of 4,798,341 young ladies per annum. It is very pleasant to be a brakeman, but only the sons of millionaires can afford to aspire to the position.—*Boston Transcript*.

General Railroad News**MEETINGS AND ANNOUNCEMENTS.****Meetings.**

Meetings will be held as follows:

Boston & Maine, annual meeting, at the City Hall in Lawrence, Mass., at 10.30 a. m. on Dec. 12.

Eastern, annual meeting, at the Meionan Hall in Boston, at 11 a. m. on Dec. 12.

New York & New England, annual meeting, Dec. 11, at 11 a. m., in the Meionan Hall in Boston.

Richmond & Danville, annual meeting, at the office in Richmond, Va., Dec. 12, at noon. Transfer books close Dec. 4.

Richmond & West Point Terminal Co., annual meeting, at the office in Richmond, Va., Dec. 11, at noon.

Dividends.

Dividends have been declared as follows:

Boston & Lowell, 3 per cent., semi-annual, payable Jan. 1, to stockholders of record Dec. 12. The July dividend was 2½ per cent.

Chicago, Rock Island & Pacific, 1½ per cent., quarterly, payable Feb. 1.

Eastern, in New Hampshire (leased to Eastern Co.), 2½ per cent., semi-annual, payable Dec. 15.

New York, Lake Erie & Western, 6 per cent. on the preferred stock for the year ending Sept. 30 last, payable Jan. 15.

Richmond & Petersburg, 2½ per cent., semi-annual, payable Jan. 1.

Foreclosure Sales.

The Lancaster road was sold in Boston, Nov. 28, for \$15,000. The road extends from Hudson, Mass., to South Lancaster, 8½ miles, and has never been operated, although built 10 years ago. The Boston Advertiser says of this sale:

"The property originally cost over \$220,000, and was leased at that to the Fitchburg and Worcester & Nashua Railroad companies, which, upon its completion, refused to operate it under the lease. Mr. Robert Codman, a director in the Fitchburg Railroad, was the ostensible buyer. The terms of sale, not announced until the last moment, required \$5,000 cash down, balance on delivery of deed. The sale included all the Lancaster Railroad's rights against the Fitchburg and Worcester & Nashua companies under the lease. It is thought the Fitchburg road is the real buyer, and is to give a further consideration to certain stockholders of the Lancaster. Mr. Codman is known to be executor of the will of the late

Peter B. Brigham, who held \$100,000 of the stock and a few bonds. The sale was objected to by S. W. Hathaway, a bondholder and otherwise a creditor, who will oppose confirmation of the sale. The purchasers get the property substantially clear, as the Lancaster Railroad Co. went into bankruptcy some years ago, and settled with its creditors for 25 cents on the dollar, giving in settlement two-year notes void in law, but most people took the notes and relied upon them until the debts became outlawed so that there are now only a few land damage claims outstanding."

Joint Executive Committee Passenger Meeting.

A meeting of the Joint Executive Committee (Passenger Department) will be held at the office of the Chairman, No. 346 Broadway, New York, on Tuesday, Dec. 11, 1888, at 11 o'clock a. m., for the consideration of such business as may come before it.

Southern Railway & Steamship Association.

General Commissioner Virgil Powers has issued the following call:

"A meeting of the Executive Committee is hereby called at Atlanta, 3 p. m., Thursday next, Dec. 6, by request of three members, to consider questions growing out of Atlanta and Macon cotton shipments, and to consider the protection of business of local territory of the various roads terminating at competitive points; also to consider questions of rates referred to Executive Committee, and other matters that may be brought up."

The special object of the meeting is to consider the action taken by the Rate Committee as to rates from Athens, Ga., and also a charge that the East Tennessee, Virginia & Georgia has not reported cotton shipped over its road from Atlanta and Macon. The companies requesting the meeting are the Central of Georgia, the Western & Atlantic and the South Carolina.

New York Railroad Commission.

The following circular from the New York Railroad Commission is dated Albany, Nov. 24, and addressed to the railroad companies of the state:

"You will oblige this Board if you will convey, at the earliest practical moment, the action or determination of your company as to the action thereof, relative to the recommendations of the Board as expressed in Circulars Nos. 14, 15 and 17, touching respectively, bridges, tunnels and warning signals; safety gates and flagmen; and grade crossings and signals, rules, etc., thereat. This information is required with a view to the annual report of the Board."

ELECTIONS AND APPOINTMENTS.

Alleghany Iron Co.—The officers of this company are: President, C. R. Mason; Superintendent and Engineer, J. J. Stack, Jr.

Attica, Lockport & Lake Ontario.—The officers of this new company are: President, R. S. Stevens, Attica, N. Y.; Vice-President, M. W. Spencer, New York; Secretary, J. V. D. Loomis, Attica, N. Y.; Treasurer, John Hodge, Lockport, New York.

Buffalo Harbor.—The directors of this new company are: Charles A. Sweet, Charles G. Curtis, H. H. Lyon, Alexander M. Curtis, H. H. Seymour, Frank Perew, D. Bradley Sweet, Alfred P. Wright, Harlow C. Curtis, Nehemiah Osborn, Leonard Dodge, Gustave Fleischman, Benjamin B. Hamilton, all of Buffalo.

Chicago & Northwestern.—The following circulars have been issued:

"Mr. C. C. Wheeler is appointed General Superintendent of the Chicago & Northwestern Railway Co., its proprietary roads and leased lines, in place of Mr. J. D. Lyng, resigned, to take effect Dec. 1."

"Mr. Edward J. Cuyler has been appointed Superintendent of the Wisconsin Division of this company's lines, in place of C. D. Gorham, resigned, to take effect Dec. 1."

"Mr. Wheeler was formerly connected with the road, having served it as General Freight Agent, Assistant General Superintendent and Assistant General Manager; he left it two years ago to become General Manager of the Atchison, Topeka & Santa Fe. Mr. Cuyler was also on the road for a long time, leaving it less than two years ago."

Chicago, St. Louis & Pittsburgh.—Mr. E. A. Ford has been appointed General Passenger Agent in place of J. C. Ernst, resigned. Mr. Ford is also General Passenger Agent of the Pennsylvania Company and the Pittsburgh, Cincinnati & St. Louis.

Mr. Frank Van Dusen has been appointed Assistant General Passenger Agent, with office in Chicago.

Delaware & Hudson Canal Co.—Mr. Thomas Howard has been appointed Master Mechanic at Oneonta, N. Y., on the Albany & Susquehanna Division.

Denver & New Orleans.—S. P. Weller having resigned the position of Master Mechanic, J. H. Kirk, formerly of the Denver, South Park & Pacific, has been appointed in his place.

East Tennessee, Virginia & Georgia.—Mr. H. Perkins, formerly of the Charlotte, Columbia & Augusta road, has been appointed General Foreman of Car Department of Atlanta and Brunswick divisions, with office at Atlanta, Ga.

Georgia Pacific.—At the annual meeting in Birmingham, Ala., Nov. 28, the following directors were chosen: Joseph Bryan, W. P. Clyde, John W. Johnston, J. A. Montgomery, W. G. Oakman, B. Peyton, George S. Scott, R. H. Temple, E. M. Tutwiler. The board re-elected John W. Johnston President.

Hannibal & St. Joseph.—The new board has elected C. E. Perkins, President; J. B. Carson, Vice-President. Mr. Carson has been General Manager of the road for several years.

Mr. T. L. Dunn, Chief Engineer, has been appointed Acting Superintendent in place of Mr. W. R. Woodward, who has gone to the Texas & St. Louis road.

Lake Erie & Western.—The general offices of this company will be removed from La Fayette, Ind., to Bloomington, Ill., on Dec. 10.

Little Rock & Fort Smith.—Mr. Thomas M. Gibson is appointed Land Commissioner of this road. Mr. A. V. Stafford is appointed Cashier.

Little Rock, Mississippi River & Texas.—Mr. Thomas M. Gibson has been appointed Land Commissioner of this road. Mr. A. V. Stafford has been appointed Cashier.

Louisville & Nashville.—The following circulars from General Manager Bradford Dunham are dated Louisville, Ky., Nov. 27:

"Mr. D. W. C. Rowland has resigned the office of General Superintendent of Transportation, taking effect Dec. 1. On and after that date all communications relating to tha-

department should be addressed to Bradford Dunham, General Manager.

"Mr. C. O. Parker, Assistant Superintendent, is appointed Superintendent of St. Louis Division, vice Capt. Lee Howell, who will devote his entire time to the duties of the office of General Freight Agent of the St. Louis and Henderson divisions. Effective Dec. 1, 1888."

"Mr. J. T. Harahan is appointed General Superintendent of the South & North Alabama Railroad, and of the following divisions of the Louisville & Nashville Railroad: Mobile & Montgomery; New Orleans & Mobile; Montgomery & Selma; Pensacola & Selma (upper and lower), and the Pensacola. Office, New Orleans, La. Superintendents of divisions named will report to him. Appointment to take effect Dec. 1, 1888."

Manchester & Fitchburg.—The directors of this new company are: Aretas Blood, P. C. Cheney, Manchester, N. H.; John B. Meers, Berlin, N. H.; R. M. Wallace, Milford, N. H.; Samuel C. Forsyth, C. E. Ware, Jr., Fitchburg, Mass.; Charles S. Mellen, Boston.

New York, Lake Erie & Western.—The new board has re-elected Hugh J. Jewett, President; George R. Blanchard, Robert Harris, Vice-Presidents; A. R. Macdonough, Secretary; Bird W. Spencer, Treasurer.

Philadelphia, Wilmington & Baltimore.—Mr. John Whitaker has been appointed Assistant General Freight Agent of this company, to date from Nov. 1, 1888.

Pittsburgh and Connellsville.—At the annual meeting in Pittsburgh, Dec. 3, the following were chosen: President, Robert Garrett; Directors, Wm. Baldwin, W. A. Berry, W. S. Bissell, Mendes Cohen, C. C. Fitzgibbon, W. H. Kootz, C. C. Markie, W. H. Markie, John D. Scully, Hugh Sisson, Charles Webb; Secretary and Treasurer, J. B. Washington. The road is owned by the Baltimore & Ohio.

Pittsburgh & Western.—General Manager Thomas M. King has appointed Mr. N. Bruce Assistant to the General Manager; all reports of the operations of the road will be made to him, as well as requisitions for materials and supplies.

Mr. J. T. Johnson has been appointed Superintendent in place of Mr. W. C. Mobley, who is made General Agent.

Providence & Springfield.—At the annual meeting in Providence, R. I., Dec. 5, the following directors were chosen: Wm. Tinkham, John L. Ross, Horace A. Kimball, Edward Pearce, Jr., Providence; Albert L. Sayles, James O. Inman, Pascoag, R. I.; Sidney Dillon, New York.

Rhode Island Railroad Commission.—The Governor of Rhode Island has appointed Mr. Henry Staples Railroad Commissioner for another term. He had held the office for several years.

Sodus Bay & Southern.—Mr. George A. Stearns has been appointed General Manager of this road. He was recently Assistant General Freight Agent of the Central Railroad of New Jersey.

Toledo, Cincinnati & St. Louis.—Mr. W. J. Craig, recently made Receiver of this road in Ohio, has now been appointed Receiver in Indiana and Illinois also, replacing Mr. Dwight.

Union Pacific.—Mr. T. B. Gault is appointed General Agent of the Passenger Department for this company, with headquarters at No. 57 Clark street, Chicago, Ill. Mr. Gault will have general charge of the passenger business for this company in Chicago and vicinity. Appointment takes effect Dec. 1, 1888.

Mr. J. E. Parker is appointed Travelling Agent for this company vice H. D. Price, resigned. Mr. Parker will have charge of District No. 5, with headquarters at Montreal. Appointment takes effect Dec. 1, 1888.

Western Railroad Association.—The following circular from Mr. B. F. Ayer, President, is dated Chicago, Nov. 30: "Mr. J. H. Raymond having retired from the offices of Secretary and Treasurer of this Association, Mr. George Payson has been appointed Secretary and Treasurer *pro tem*. All communications hereafter will be addressed to Mr. Payson until further notice."

Worcester, Nashua & Rochester.—This consolidated company has elected Charles S. Turner President; T. W. Hammond, Secretary and Treasurer.

PERSONAL.

—Mr. C. D. Gorham has resigned his position as Superintendent of the Wisconsin Division of the Chicago and Northwestern road.

—Mr. W. B. Tuell, a prominent business man and President of the Terre Haute & Southeastern Co., died at his residence in Terre Haute, Ind., Dec. 2.

—It is reported that Mr. E. T. Jeffrey has resigned his position as General Superintendent of the Illinois Central Railroad. The resignation has not yet been accepted.

—Mr. William Kellogg, Superintendent of Bridges of the Lehigh Valley Railroad, died in Easton, Pa., Dec. 1, aged 76 years. He had had many years' experience in bridge work, and had been connected with the Lehigh Valley road for 30 years. He built the first railroad bridge over the Delaware at Easton.

—Mr. John F. Desmazes, Auditor of Freight Accounts of the New York Central & Hudson River Railroad, for more than 30 years in the service of the company, and a most faithful and efficient officer, whose kindness of heart attracted all who had dealings with him, died Dec. 3, after a long illness, in his 65th year.

—The report that Mr. J. D. Layng had resigned his position as General Superintendent of the Chicago & Northwestern road is confirmed. Mr. Layng gave up the office on Dec. 1, after holding it about two years. He was, for a number of years before going to the Northwestern, connected with the Pittsburgh, Fort Wayne & Chicago road.

—Mr. J. H. Raymond has resigned his position as Secretary of the Western Railroad Association, after 10 years of service. Mr. Raymond has associated with himself Mr. F. H. T. Mason, and will hereafter devote his attention to legal business relating to patents and to corporations organized under the laws of Illinois. His office is in Room 58, Honore Building, Chicago.

—Mr. Willis Phelps, for many years an extensive railroad contractor, died at his residence in Springfield, Mass., Nov. 26. Mr. Phelps has been known as a contractor on a very extensive scale, having been engaged on many important works, and he was also largely interested in railroad property, being part owner of several of the lines which he built. Of late years he has not been actively engaged in business.

—Mr. Howard Schuyler, who will be remembered as one of the first engineers in this country to advocate narrow-gauge railroads, died in Switzerland on the 3d inst. Mr. Schuyler was born at Ithaca, N. Y., in 1845. His father

emigrated to Kansas as a "free-state man" in the days of the excitement on that subject, and the son grew up there and served in a Kansas regiment during the war, reaching the rank of captain. At the close of the war he was offered a command by Juarez, who was then struggling to put down the empire of Maximilian in Mexico. Young Schuyler accepted the appointment and intended to raise a regiment in Kansas to join Juarez, but was prevented by the opposition of our government.

After the war he served as an engineer during the location and construction of the Kansas Pacific Railway, and on its completion he, in connection with Wm. J. Palmer and Mr. Greenwood, organized the Denver & Rio Grande Railway Co., and that part of the road built before 1874 was constructed under his direction as Chief Engineer. Afterward he was for a time Chief Engineer of the North Pacific Coast Railroad in California. He went to Mexico, we believe, during the Lerdo administration, with some gentlemen who then sought a concession for a railroad in that country. After the Mexican Central was organized he became Chief Engineer of that road. His health failing, he resigned this position about a year and a half ago, and has been in Europe most of the time since, in a vain search for health.

TRAFFIC AND EARNINGS.

Railroad Earnings.

Earnings for various periods are reported as follows:

Eleven months ending Nov. 30:

	1883.	1882.	Inc. or Dec.	P. c.
Central Iowa.....	\$1,188,866	\$1,065,790	I. \$123,076	11.5
Chi. & N. W. P.....	18,422,011	16,422,011	I. 2,000,000	10.2
Chi. & N. W. S.....	22,150,706	22,150,706	I. 1,017,399	4.6
Denver & R. G.....	6,807,050	5,906,109	I. 900,941	15.3
Long Island.....	2,544,205	2,330,899	I. 213,306	9.2
Louisville & Nash.....	12,838,170	11,447,150	I. 1,391,020	12.2

Ten months ending Oct. 31:

	1883.	1882.	Inc. or Dec.	P. c.
Atch. T. & S. F.....	\$11,670,709	\$11,965,351	D. \$294,642	2.5
Net earnings.....	6,330,750	5,016,594	I. 1,314,156	26.2
So. Kansas.....	1,380,658	1,055,318	I. 325,340	31.7
Net earnings.....	747,525	561,475	I. 186,050	33.1
Ches. & Ohio.....	3,255,101	2,780,889	I. 474,212	17.1
Net earnings.....	1,126,327	808,541	I. 317,786	39.3
Eliz., L. & B. S.....	603,521	421,040	I. 182,481	43.3
Net earnings.....	192,194	131,067	I. 61,127	46.7
Denver & R. G.....	6,167,749	5,232,541	I. 935,208	17.9
Net earnings.....	2,232,541	1,778,478	I. 454,063	25.6
Phila. & Reading.....	24,347,640	17,782,478	I. 6,565,162	36.9
Net earnings.....	11,635,393	7,883,891	I. 3,751,502	47.6
P. & R. Coal & I.....	14,312,145	12,371,405	I. 1,940,740	15.7
Net earnings.....	830,120	390,738	I. 439,382	111.9
West Jersey.....	1,071,155	968,003	I. 103,062	10.6
Net earnings.....	423,022	429,307	D. 6,285	1.5

Month of October:

	1883.	1882.	Inc. or Dec.	P. c.
Atch. T. & S. F.....	\$1,361,582	\$1,430,226	D. \$68,644	4.8
Net earnings.....	798,004	774,137	I. 23,867	3.1
So. Kansas.....	188,252	150,774	I. 37,478	24.8
Net earnings.....	118,218	90,993	I. 27,225	30.5
Ches. & Ohio.....	375,815	351,310	I. 24,505	7.0
Net earnings.....	148,875	128,203	I. 20,672	16.1
Eliz., L. & B. S.....	70,095	58,289	I. 11,806	20.4
Net earnings.....	23,656	19,753	I. 3,903	19.5
Denver & R. G.....	720,445	617,749	I. 102,696	16.6
Net earnings.....	288,378	222,513	I. 65,865	29.6
Phila. & Reading.....	3,531,436	2,229,513	I. 1,301,923	58.4
Net earnings.....	1,900,959	1,123,552	I. 777,407	69.1
P. & R. Coal & I.....	1,873,592	1,592,217	I. 281,375	17.7
Net earnings.....	150,302	147,949	I. 2,353	1.6
West Jersey.....	83,521	83,194	I. 327	0.4
Net earnings.....	27,314	28,036	D. 722	2.6

Month of November:

	1883.	1882.	Inc. or Dec.	P. c.
Central Iowa.....	\$143,244	\$109,014	I. \$34,230	31.5
Chi., Mil. & St. P.....	2,388,000	2,072,973	I. 315,027	15.2
Chi. & N. W. S.....	2,357,800	2,100,400	I. 257,400	12.3
Denver & R. G.....	659,800	512,900	I. 146,900	28.7
Long Island.....	188,651	178,817	I. 9,834	5.5
Louisville & Nash.....	1,274,905	1,200,302	I. 74,603	6.2

Third week in November:

	1883.	1882.	Inc. or Dec.	P. c.
Burr., Cedar Rap. & No.....	\$71,004	\$80,061	I. \$8,843	8.8
Ches. & Ohio.....	75,207	67,011	I. 8,196	12.2
Eliz., L. & B. S.....	15,095	12,137	I. 2,958	24.4
Chi. & Eastern Ill.....	38,026	46,230	D. 8,204	15.8
Chi. & Gd. Trunk.....	72,437	55,005	I. 17,432	31.7
Flint & Pere Marq.....	52,457	47,892	I. 4,565	9.7
Lake E. & West.....	30,211	27,592	I. 2,619	9.4
Marquette, H. & O.....	8,846	19,065	D. 10,219	53.8

Weekly reports of earnings are usually estimated in part, and are subject to correction by later statements.

Grain Movement.

For the week ending Nov. 24 receipts and shipments of grain of all kinds at the eight reporting Northwestern markets and receipts at the seven Atlantic ports have been, in bushels, for the past ten years:

	1874.	1875.	1876.	1877.	1878.	1879.	1880.	1881.	1882.	1883.
Northwestern receipts.....	2,359,732	3,188,546	2,645,154	3,101,359	4,678,731	3,865,037	4,388,767	2,564,428	4,866,926	7,208,602
Atlantic receipts.....	858,513	1,917,619	1,733,999	1,892,943	2,919,174	2,182,321	2,004,368	2,036,885	2,071,628	3,940,250
Total.....	3,218,245	5,106,165	4,379,153	5,004,302	7,597,905	6,047,358	6,393,135	4,601,313	6,938,554	11,148,852

Thus the receipts of the Northwestern markets for the week this year were 7,208,602 bushels (48 per cent.) more than last year, when they were larger than ever before.

They were also 760,000 bushels more than in the previous week of this year, and the largest for six weeks.

The shipments of these markets were not three-fifths of the receipts, but were a fifth larger than in the corresponding week of last year, when they were larger than in any previous year. The rail shipments were also considerably larger than in any corresponding week. The shipments down the Mississippi were 173,773 bushels and 4.4 per cent. of the whole.

The Atlantic receipts of the week, however, were smaller than in any corresponding week since 1875, 29 per cent. less than last year, and not half as great as in 1877, 1878 and 1880.

Exports from Atlantic ports for this week to Nov. 24 for four years have been:

	1880.	1881.	1882.	1883.
Flour, bbls.....	143,254	123,295	209,190	188,164
Grain, bush.....	4,164,768	2,366,401	1,857,347	1,524,035

Including flour these exports were about 529,000 bushels (18 per cent.) less than last year, 451,000 less than in 1881, and 2,439,000 (50 per cent.) less than in 1880.

Buffalo grain receipts by lake from the opening of navigation to November 30 were as follows, flour in barrels and grain in bushels, flour being reduced to grain in the totals:

	1883.	1882.	Inc.	P. c.
Flour.....	1,637,013	1,358,905	278,108	20.4
Grain.....	94,036,122	49,392,638	44,643,484	90.7
Total, bushels.....	72,736,687	56,193,763	16,542,924	29.4

The flour receipts were the largest for eleven years. In the same period last year's grain receipts were exceeded four times—in 1880, 1879, 1878 and 1872.

For the same period shipments eastward of grain received by lake were as follows, in bushels:

	1883.	1882.	Inc. or Dec.	P. c.
By canal.....	42,000,104	29,083,880	I. 12,916,224	43.5
By rail.....	15,618,336	11,502,075	I. 4,116,261	35.8
Total.....	58,227,440	41,185,955	I. 17,041,485	41.4
P. c. by rail.....	6.8	27.9	D.	1.1

The canal opened April 20 this year and May 17 last year. It closed this year on Dec. 1. The number of boats cleared from Buffalo this year has been 9,061, against 7,638 last year—an increase of 1,423, or 18.6 per cent.

Coal.

The anthracite coal tonnage of the Belvidere Division, Pennsylvania Railroad, for the eleven months ending Dec. 1 was as follows:

	1883.	1882.	Inc. or Dec.	P. c.
Coal Port for shipment.....	121,852	100,397	I. 21,455	21.4
S. Amboy for shipment.....	547,310	673,316	D. 126,006	18.7
Local points on N. J. divs.....	765,334	605,331	I. 160,003	10.1
Co.'s use on N. J. divs.....	148,279	120,872	I. 27,407	22.6
Total.....	1,582,775	1,389,916	I. 192,859	13.9

Of the total this year 1,298,849 tons were from the Lehigh Region, and 283,926 tons from the Wyoming Region.

State Mine Inspector P. C. Wilson reports the total coal production of Iowa in 1883 (November and December estimated) at 3,881,300 tons, against 3,127,700 tons in 1882 and 3,500,000 tons in 1881.

The Lehigh Valley Railroad reports its anthracite coal tonnage for the fiscal year ending Nov. 30 at 6,527,912 tons, against 6,257,159 tons the preceding year, an increase of 270,753 tons, or 4.3 per cent. Of the total last year 2,095,978 tons went over the New Jersey Division.

Actual tonnage passing over the Huntington and Broad Top road for the eleven months ending Dec. 1 was:

	1883.	1882.	Inc. or Dec.	P. c.
Broad Top coal.....	180,644	253,339	D. 72,695	28.7
Cumberland coal.....	441,170	175,629	I. 265,541	151.2
Total.....	621,814	428,968	I. 192,846	45.0

The Broad Top coal is mined on the line; the Cumberland is carried through for the Pennsylvania Railroad.

Cumberland coal tonnages for the eleven months ending Dec. 1 are reported by the Cumberland Civilian as follows:

	Tons.
Shipments from mines:	
Cumberland & Pennsylvania R. R.....	1,521,424
George's Creek & Cumberland R. R.....	481,587
West Virginia Central & Pittsburgh R. R.....	296,756
Direct from mines to Balt. & Ohio.....	33,356
Total.....	2,333,123

Shipments out of region:

	Tons.
Baltimore & Ohio R. R.....	1,264,416
Bedford Division, Pennsylvania R. R.....	394,313
Chesapeake & Ohio Canal.....	674,394
Total.....	2,333,123

Local deliveries are included in the Baltimore & Ohio tonnage. For the corresponding period last year the shipments were 1,342,403 tons, showing an increase this year of 990,720 tons, or 73.8 per cent. In 1882 the mines were nearly all idle from March 15 to Sept. 1, on account of the miners' strike.

Coal tonnages for the week ending Nov. 24 are reported as follows:

	1883.	1882.	Inc. or Dec.	P. c.
Anthracite.....	690,909	680,249	I. 10,660	2.9
Semi-bituminous.....	134,448	130,171	I. 4,277	3.3
Bituminous, Penna.....	80,750	61,442	I. 19,308	31.4
Coke, Penna.....	65,497	66,278	D. 781	1.2

Several sales are reported of coke property in the Connellsville Region to the Pittsburgh syndicate which is apparently trying to secure control of the entire coke output of that productive region.

There is reported to be a difference among the anthracite companies as to the method to be adopted to limit the production of anthracite coal. Some of the companies want to have an entire stoppage for two weeks, or three if necessary, while the others prefer the old system of half time in alternate weeks, to continue as long as necessary. It may be noted as a curious fact that the weeks of half time are often accompanied by an increase of shipments in the full weeks much greater than the loss in the short weeks.

The coal tonnage of the Pennsylvania Railroad for the week ending Nov. 24 was:

	Coal.	Coke.	Total.
Line of road.....	183,684	58,410	242,094
From other lines.....	60,392	7,057	67,449
Total.....	244,076	65,467	309,543

The first excursion will leave Chicago Dec. 6, the next Dec. 13, and another Dec. 20. Tickets will be made good 40 days from date of sale, and will be good for one stop-over in Canada. The rates will be as follows: Chicago to Toronto (504 miles) and return, \$10; Kingston (865 miles) and return, \$13; Brockville (712 miles) and return, \$14; Montreal (807 miles) and return, \$15; Point Lévis (979 miles) and return, \$20; Portland, Me. (1,134 miles) and return, \$25. These rates are not far from 1 cent per mile, which is certainly extremely cheap.

Differential Fare Points.

The following Circular has been issued by Vice-Chairman S. F. Pierson, of the Joint Executive Committee: "To avoid misunderstanding, I beg to state that Nashville and Louisville are differential fare points within the meaning of the rules of the Joint Executive Committee. No commissions should be paid at those points on business to differential fare points in the East or to any intermediate point."

Boston Traffic Notes.

During the month of November last, 8,022 loaded freight cars were hauled east through the Hoosac tunnel, against 7,359 cars, in November, 1887, being an increase of 763 cars.

Pacific Through Freights.

Shipments of through freight eastward from California points in October and the ten months ending Oct. 31 were as follows:

	Central Pacific.		So. Pacific.		Total.
	Tons.	P. c. of total.	Tons.	P. c. of total.	Tons.
October.....	9,484	52.4	8,601	47.6	18,085
Ten months...	68,160	55.2	55,345	44.8	123,505

For the first four months of the year the Southern Pacific had slightly the lead, but since then the Central has carried the larger share of the freight.

For October the shipments were equal to 1,908 small carloads, an average of 58 a day, the Central Pacific having an average of 31 and the Southern of 27 carloads a day. The October shipments were larger than those of any preceding month this year except September.

Leading items of freight were 14,759 tons sugar, 13,396 tons canned goods, 13,096 tons wool, 11,699 tons canned salmon, 10,467 tons ripe fruit, 9,263 tons tea, 7,710 tons wine, 2,581 tons wheat and 2,138 tons rice. The wheat was all shipped in September and October, five-sixths of it by the Southern Pacific. These nine articles made up 70 per cent. of the shipments.

Colorado Association Rules for Passenger Business.

Commissioner Daniels announces new regulations which took effect Dec. 1, prescribing the circumstances under which the representatives east of the Missouri of lines in the Association may issue orders for tickets at special rates west-bound and requests for similar tickets east-bound, and the persons entitled to commercial tickets and half-rate tickets. Those entitled to commercial tickets are residents of Colorado who have paid \$1,000 freight on their shipments between the Missouri River and Denver or Pueblo in the six months preceding the issue of the ticket; traveling salesmen of Colorado houses whose business requires them to travel between the Missouri River and Denver or Pueblo; and shippers to Colorado and their salesmen east of the Missouri.

The regulations concerning half-rate tickets are as follows: "Orders for half-rates may be issued as follows: For railway employees and members of their families properly certified whose positions do not entitle them to passes; in cases requiring charitable consideration, where the trip is necessary and the subject worthy; for clergymen and others engaged solely in ministerial or missionary work, and for their families and servants; for members of the press not engaged in any other business, and for correspondents presenting credentials, traveling solely in the interest and service of public journals; by the term 'members of the press' is meant editor, assistant editor, publisher, business manager and regularly employed reporters. Half-rates will also be given to immediate families of editors, publishers and business managers of reputable journals in Kansas, Nebraska and Colorado, but not to the families of other members of the press. Half-rate tickets will also be issued for army and naval officers, soldiers, surgeons, hospital stewards and others enlisted or sworn into the War Department service." Agents must not sell any tickets at less than tariff rates between points covered by the Association without first obtaining the Commissioner's order.

A Day's Work on the Elevated Railroad.

On Evacuation Day, Nov. 26, the business done by the elevated railroad lines in New York was as follows:

	Passengers carried.	Receipts.
Second avenue line.....	30,393	\$2,137.45
Third avenue line.....	188,502	15,235.00
Sixth avenue line.....	105,409	8,887.10
Ninth avenue line.....	37,345	3,069.95
Total.....	361,649	\$29,269.50

This is the heaviest day's work ever done on these roads. The average fare was 8.09 cents, showing that the proportion of the passengers carried in commission hours (when the fare is 5 cents) was much less than on ordinary days.

Southern Railway & Steamship Association.

The Rate Committee held a called meeting in Atlanta, Ga., Nov. 23, the meeting continuing on the following day. The principal object of the meeting was to arrange rates from the West to Athens, Ga., and on this point the Committee adopted the following resolution, after much discussion:

"Whereas, it is a fact that Augusta rates are available from Chicago and other western points to Athens, only via lines not under the control of the Southern Railway & Steamship Association, in connection with the Richmond & Danville Railroad, the lines working in the Association having so far declined to participate in the reduced rates at the request of the Richmond & Danville Railroad, and the Richmond & Danville Railroad states that it is legally bound, under contract, to do all in its power to enforce Augusta rates to Athens, and that the result of these reduced rates from Chicago, etc., is to divert business from other points not having access to Athens, via lines not under the control of the Association, available for carrying out correspondingly reduced rates from such points, therefore be it

"Resolved, That the General Commissioner be requested to obtain action of the Executive Committee upon this question, at the earliest date practicable, and that pending such action, rates from all points to Athens, in line with the rates already available from Chicago, etc., be hereby authorized. This not to be considered as establishing a basis of rates to Athens, different from the present, or as affecting the present basis of rates to other points."

The Committee also took action on several matters of routine, adjusting classifications, etc.

The question of contracts and prepayment of charges on fruits and other perishable freights being brought up, it was resolved that a committee, consisting of Messrs. Brown,

Pickens, Whitehead, Taylor and Culp, be appointed to provide a contract or regulation governing the changing of destinations of shipments of perishable goods, fruits, etc., and the responsibility caused by the changes, and that they also be requested to prepare a form of bill of lading for such shipments, embodying in said bill of lading the regulation that may be agreed upon in reference to change of destination, the sub-committee to report as early as practicable to the Rate Committee.

It was decided that the new Athens rates should take effect Nov. 28; also that a circular should be issued revising cotton rates to New England towns.

Lake Superior Iron Ore.

The shipments of iron ore by water from the Lake Superior Region up to Nov. 28 are given as follows, in tons, by the Marquette Mining Journal:

	1883.	1882.	Decrease.	P. c.
From L'Anse.....	65,009	70,543	4,534	6.4
From Marquette.....	706,263	944,550	238,287	25.2
From Escanaba.....	1,404,469	1,735,259	330,790	19.1
From St. Ignace.....	59,074	60,150	1,085	1.8
Total.....	2,235,815	2,810,511	574,696	20.8

Of the shipments from Escanaba 405,092 tons were from the Marquette District and 999,377 tons from the Menominee District.

The season is now closed, navigation from the Lake Superior ports having ceased, and no more shipments will be made this year, unless two or three cargoes from Escanaba may come in.

The total output reported for the season is 2,246,851 tons. Of this the Menominee District furnished 999,387 tons, or 44.4 per cent., all shipped from Escanaba. The Marquette District furnished 1,247,474 tons (55.6 per cent.) disposed of as follows: Shipped from L'Anse, 65,009; shipped from Marquette, 706,263; shipped from Escanaba, 405,092; shipped from St. Ignace, 59,074; delivered to local furnaces, 11,086; total, 1,247,474 tons.

Pig-iron shipments for the season were 9,615 tons from Marquette and 3,312 from St. Ignace, a total of 12,927 tons.

The Marquette, Houghton & Ontonagon road carried this year for shipment by water 782,272 tons of ore, against 1,013,499 tons in 1882, a decrease of 231,227 tons, or 22.8 per cent.

The shipments of the Marquette District by way of Escanaba increased more in proportion than those by way of Marquette. But the Escanaba shipments from both districts were 63 per cent. of the whole this year, against 58 last year, because the Menominee shipments were so much larger a part of the whole.

For seven successive years the shipments from the several ports have been:

Year.	Escanaba.	Marquette.	L'Anse.	St. Ignace.	Total.
1877.....	383,743	521,743	59,571	.....	965,057
1878.....	506,893	552,127	42,186	.....	1,101,206
1879.....	755,274	509,416	38,989	.....	1,303,679
1880.....	1,163,791	633,828	53,066	.....	1,850,625
1881.....	1,438,042	707,772	53,993	.....	2,199,807
1882.....	1,735,259	944,550	70,543	60,150	2,810,511
1883.....	1,404,469	706,263	65,009	59,074	2,235,815

Thus the shipments this year are larger than in any other year except 1882.

OLD AND NEW ROADS.

Allegheny Iron Co.—This company has completed a railroad of standard gauge from a junction with the Chesapeake & Ohio Railway, at its first crossing of Jackson River below Covington, Va., up Pounding Mill Run 5 miles to the great iron ore beds above the old Dolly-Anne or Rough-and-Ready Furnace, on the Douthat survey, and the company will soon begin the mining and shipping of iron ores on a large scale. The ore beds are connected with the railway by an incline 1,000 ft. long.

Atchison, Topeka & Santa Fe.—This company's statement for October and the ten months ending Oct. 31 gives the following figures:

	October.	1883.	1882.	Ten months.	1883.	1882.
Earnings.....	\$1,301,582	\$1,430,226	\$1,070,760	\$11,965,254	\$11,965,254	\$11,965,254
Expenses.....	563,518	656,080	5,340,010	6,948,760	6,948,760	6,948,760
Net earnings.....	\$738,064	\$774,137	\$6,330,750	\$5,016,594	\$5,016,594	\$5,016,594
P. c. of exp.....	41.4	45.9	45.8	58.1	58.1	58.1

For the ten months there was a decrease of \$294,585, or 2.5 per cent., in gross earnings; a decrease of \$1,608,741, or 23.2 per cent., in expenses, and a resulting gain in net earnings of \$1,314,156, or 26.2 per cent. For October the road worked was 1,820 miles in both years; for the ten months, 1,830 miles this year, against 1,814 last year. The large decrease in expenses is slightly due to improved condition of road.

For the controlled Southern Kansas road the following statement is made, the mileage for October being 398 miles in both years, and for the ten months 398 miles this year, against 391 in 1882.

	October.	1883.	1882.	Ten months.	1883.	1882.
Earnings.....	\$188,252	\$150,774	\$1,389,658	\$1,055,318	\$1,055,318	\$1,055,318
Expenses.....	70,034	60,181	642,133	493,943	493,943	493,943
Net earnings.....	\$118,218	\$90,593	\$747,525	\$561,375	\$561,375	\$561,375
Per c. of exp.....	37.2	39.9	46.2	46.8	46.8	46.8

For the ten months this shows an increase of \$334,340, or 31.7 per cent., in gross earnings, with an increase of \$149,290, or 30.0 per cent., in expenses, the result being a gain in net earnings of \$186,050, or 33.1 per cent.

Bangor & Piscataquis.—Most of the grading on the extension of this road from Blanchard, Me., to Moosehead Lake is finished, except the rock cutting, on which work will be continued through the winter. It is not expected that the extension will be finished until spring, but some track is now being laid for the use of construction trains.

Buffalo Harbor.—This company has been organized to build a railroad across the city of Buffalo from a point on the Buffalo, New York & Philadelphia road to the city ship canal. It is intended as a freight connection only.

Burlington, Cedar Rapids & Northern.—It is said that this company is making arrangements to extend its Pacific Division northwest from Worthington, Minn., next spring, the intention being to build it through to Bismarck, Dak., finally. The Clinton Branch is also to be completed to Iowa City next year.

Burlington, LaFayette & Western.—This company has been organized to build a railroad from Kokoma, Md., west to LaFayette and thence west by south to Veedersburg, about 75 miles in all.

Burlington & Northwestern.—This company's Burlington & Western Division is now completed to Oskaloosa, Ia., 24 miles westward from the late terminus at Martinsburg, and 105 miles from Burlington. An excursion train was run through Nov. 24, and the road formally opened for traffic.

Chesapeake & Ohio.—This company makes the following statement for October and the ten months ending Oct. 31:

	October.	1883.	1882.	Ten months.	1883.	1882.
Earnings.....	\$375,815	\$351,310	\$1,255,101	\$2,780,880	\$2,780,880	\$2,780,880
Expenses.....	220,940	223,107	2,128,774	1,912,348	1,912,348	1,912,348
Net earnings.....	\$154,875	\$128,203	\$1,126,327	\$868,532	\$868,532	\$868,532
Per cent. of exp.....	60.4	63.5	63.5	63.5	63.5	63.5

For the ten months there was an increase of \$474,312, or 17.1 per cent., in gross earnings; an increase of \$216,426, or 11.8 per cent., in expenses, and a gain in net earnings of \$257,786, or 29.7 per cent.

For the leased Elizabethtown, Lexington & Big Sandy road, the western extension of the road, the following figures are given:

	October.	1883.	1882.	Ten months.	1883.	1882.
Earnings.....	\$70,695	\$58,289	\$603,321	\$421,040	\$421,040	\$421,040
Expenses.....	47,039	38,530	411,327	289,973	289,973	289,973
Net earnings.....	\$23,656	\$19,759	\$192,194	\$131,067	\$131,067	\$131,067
Per cent. of exp.....	68.5	66.1	68.0	68.0	68.0	68.0

For the ten months this shows an increase of \$182,491, or 43.3 per cent., in gross earnings; an increase of \$121,354, or 41.8 per cent., in expenses, and a resulting gain in net earnings of \$61,137, or 46.7 per cent.

Cincinnati, Columbus & Hocking Valley.—It is said that arrangements have been made to lease this road to the Indiana, Bloomington & Western, or rather to the Ohio Southern, which is controlled by that company. The road is a short line of 28 miles, running from Clayville Junction, O., to Jeffersonville, with a small local business.

Cleveland, Columbus, Cincinnati & Indianapolis.—A change has been made in the running of the Indianapolis Division, by which the division station will hereafter be at Bellefontaine, and the engineers' runs will be between Cleveland and Bellefontaine and Bellefontaine and Indianapolis. Heretofore the change has been made at Galion.

The Company will soon build new shops at Linndale, 7 miles from Cleveland, where it owns a large tract of land.

Connecticut River.—The second track on this road has been opened from North Hatfield, Mass., to Old Deerfield Station, 9 miles. It is to be extended over the 19 miles between Greenfield and Northampton.

The new bridge over the Connecticut River between Holyoke and Willimansett is finished and is now in use. The bridge is of iron, 850 ft. long, and cost \$150,000. It replaces a wooden bridge.

Danville & New River.—The President of the company reports that the road is now completed to Spencer, Va., 56 miles west of Danville, and that work is well advanced on the grading of the 19 miles from Spencer to Patrick Court House. A locomotive, a passenger car and 11 freight cars have recently been added to the equipment, and contracts made for another locomotive, 2 passenger and 15 freight cars. The bonded debt is \$450,000, or \$6,000 per mile on the 75 miles from Danville to Patrick Court House. For 14 months ending Sept. 30 last the gross earnings on 43 miles of road were \$57,222, and the working expenses were 45 per cent. of the receipts.

Danville, Olney & Ohio River.—In the United States Circuit Court in Springfield, Ill., Nov. 30, Mr. Austin Corbin (who is President of the Indiana, Bloomington & Western Co.) was admitted as a party in the foreclosure suit. Mr. Corbin appeared as representative of a considerable amount of bonds owned by himself and others, and desires to contest certain action of the trustees.

Denver & Rio Grande.—This company makes the following statement for October and the ten months ending Oct. 31:

	October.	1883.	1882.	Ten months.	1883.	1882.
Earnings.....	\$720,445	.....	.....	\$6,167,749	.....	.....
Expenses.....	432,007	.....	.....	3,935,208	.....	.....
Net earnings.....	\$288,378	.....	.....	\$2,232,541	.....	.....
Per cent. of exp.....	60.0	.....	.....	63.8	.....	.....

The earnings and expenses include those of the leased lines in Utah. No comparison is made with last year.

Detroit, Mackinac & Marquette.—The Marquette (Mich.) Mining Journal of Dec. 1 says: "Very remarkable progress has been made on the construction of the Marquette & Western Railroad since ground was broken for that section of the Detroit, Mackinac & Marquette road. The three long bridges over the Carp are nearly finished, and most of the line between here and Negaunee is ready for the ties and rails. Considerable iron has been laid down already on the branches to the mines near Ishpeming. At this end excellent headway is making also. The road-bed from the junction to a connection with the Cleveland dock is in course of construction. The site for the depot is not yet wholly cleared of buildings, but only one remains on the corner where the station is to be located, and that will have to go ere long. The depot building will be a handsome, goodly-sized structure, we are informed. It will be two stories high, the second floor to be used for the company's local offices. The construction of this building will be started before long, and a force will be set at work repairing the dock within a few weeks, the design being to add very considerably to their capacity before another shipping season opens."

Eastern.—The bill in equity to determine whether the Eastern Railroad, or the trustees under the mortgage of the property of the company, have the right to vote on the 15,201 shares of the Maine Central Railroad Co., was decided in favor of the company. The suit was a friendly one, and was brought to determine the rights of the respective parties. The trustees claimed that the Maine Central stock was part of the property covered by the mortgage, and that the right to vote on it vested in them.

Fort Worth & Denver City.—This Company makes the following statement for October and the fiscal year ending Oct. 31:

	October.	1883.	1882.	Year.	1883.	1882.
Earnings.....	\$43,665	.....	.....	\$449,374	.....	.....
Expenses.....	19,570	.....	.....	219,091	.....	.....
Net earnings.....	\$24,095	.....	.....	\$230,283	.....	.....
Interest paid.....	.....	.....	.....	209,400	.....	.....

Surplus for the year..... \$17,883

The earnings for the year were \$4,055 gross and \$2,066 net per mile; the expenses were 49.06 per cent. of gross earnings.

Fitchburg.—The New York Central & Hudson River Co. has sent this company formal notice of its intention to withdraw from the Hoosac Tunnel Line on March 1 next, and has also given notice that it will receive no through passenger cars from the Fitchburg road or the Hoosac Tunnel Line. The reason for this action is reported to be the fact that the Fitchburg road has lately completed, through the Boston, Hoosac Tunnel & Western road, a connection with the New York, West Shore & Buffalo road, and has

made arrangements for exchanging business with the West Shore road. The Fitchburg has still the West Shore connection to Buffalo open to it, and has also the connection with the Erie by way of Binghamton, over which less freight has heretofore been sent than was expected when it was opened.

Grand Trunk.—The track of this company's Michigan Air Line is now laid to Jackson, Mich., 19 miles westward from the late terminus at Stockbridge and 90 miles from the junction with the Detroit Division at Ridgeway. Jackson will be the terminus for the present, but it is stated that the road is to be extended to a junction with the Chicago & Grand Trunk at Vicksburg, 63 miles west of Jackson.

Louisville, Evansville & St. Louis.—The Corydon Branch of this road has been completed and opened for traffic. It extends from Mott, Ind., 17 miles west of New Albany, southward 9 miles to the town of Corydon.

Louisville, New Orleans & Texas.—The connection of this road through Vicksburg, Miss., has been finished by the completion of the long trestle bridge in the southern part of that city, and a train will be put on to run between Port Gibson and Anthony's Ferry on the Yazoo River.

Manchester & Fitchburg.—This company has been organized under a charter granted six years ago, to build a railroad from Manchester, N. H., southwest to Mason Village, where connection will be made with a branch of the Fitchburg road. The distance is about 30 miles.

Mexican Railroad Notes.—The following notes are from the *Mexican Financier* of Nov. 17:

The Puebla & San Marcos Railway is not making expenses on account of the present low rate of fare. The tariff will therefore be raised in a few weeks.

Arrangements have just been completed for the immediate resumption of the payment of cash subsidies to the Sonora Railway from the receipts of the custom-house at Guaymas to the extent of \$8,000 a month. The payments were suspended last July.

The station of La Mesa, on the Matamoros & Monterey line of the Mexican National, promises to become a favorite excursion resort for parties from Matamoros and Brownsville, and picnic grounds have been fitted up there.

The Legislature of Vera Cruz has empowered the Executive of the state to grant a concession for the construction of a railway, together with a telegraph or telephone line between Camaron and Huasteco, the same concession having been granted the state by the Federal Government. The state gives, as an auxiliary subsidy, \$500 per kilometre.

The wooden bridge of the Mexican Central over the Rio Chuviccar at Chihuahua is being replaced by an iron structure. A great part of the provisional bridges of the company to the north of Chihuahua have been replaced with iron, and to the south the handsome iron bridge over the San Pedro River, one of the largest streams in the state of Chihuahua, has been completed.

The Atchison, Topeka & Santa Fe Railroad Co. has begun work on its new hotel at Guaymas. It will be a fine affair, and will probably rival the company's grand hotel at Las Vegas Hot Springs in the completeness of its appointments. The location, on a hill near the bay, is one of the finest on the Gulf of California, with a constant breeze from the Gulf and free from the dust and heat of the town, from which the site is one and a half miles away. The new street-railway will extend its line to the grounds of the hotel, which, with the proposed introduction of water from San José de Guaymas, can be made exceedingly beautiful with the exuberant tropical vegetation of the coast, including orange-trees, coconut-palms and date-palms. The hotel will have 150 rooms. There will be fine sea-bathing, the water having an agreeable temperature all winter. A steam yacht will be attached to the hotel. The scenery of Guaymas harbor is as picturesque as that of Mount Desert, and it is expected that the company will be able to divert to Guaymas considerable of the pleasure travel which now crosses the continent to California in search of a milder climate every winter, the climate of Guaymas being even and summer-like all winter, while the bay, which is never ruffled by storms at that season, abounds in the finest fish and oysters, and affords excellent opportunities for yachting and other aquatic sports. There are fine gardens in the neighborhood of Guaymas especially devoted to the raising of fruits and vegetables for the market, and as the best season for all the northern summer vegetables there is in the winter, the cuisine of the hotel can be excellently supplied. Altogether the prospect for the development of a favorite winter resort at Guaymas appears to be excellent.

Minden Tap.—The grading of this road is now very nearly completed, and a contract has been let for the bridges and trestles. These will be finished early next year, and the track will then be laid. The road will be about 8 miles long, from Minden, La., southward to a junction with the Vicksburg, Shreveport & Pacific road.

New York Central & Hudson River.—This company is arranging a new scale of commutation rates for suburban passengers on its Hudson River and Harlem divisions. The new arrangement involves a reduction of from 30 to 45 per cent. in rates, and the substitution of monthly tickets for the old system of 100-ride books. The monthly tickets will be sold on a sliding scale, as they are on some other roads out of New York, by which the commuter who buys tickets for 12 consecutive months will pay but little more than if he bought tickets for the whole year at once—a plan very acceptable to the great majority of commuters. The new arrangement will bring down the rates on this road to about the same as those charged by the lines running into New Jersey. Heretofore they have been considerably higher.

New York, Lake Erie & Western.—The Port Jervis (N. Y.) *Gazette* of Dec. 3 says: "A committee from each division of the Erie, composed of one passenger and two freight engineers, went to New York Saturday and laid their difficulties with M. F. Wilder, Superintendent of Motive Power, before the highest officials of the road. This trouble, which has been noticed before in these columns, arises from an order issued by Mr. Wilder, Sept. 26, to the effect that all engineers must go to the shops and round houses in person to get their engines out, and another issued Nov. 26, to the effect that all engineers and firemen must personally oversee the putting away of their engines and taking them for coal and water, as the hostlers were to be discontinued. Becoming very much dissatisfied with these rules, the engineers held a meeting at Hornellsville a week ago last Saturday, and a committee was appointed to wait upon Mr. Griggs, Master Mechanic of the Western Division. He agreed to confer with Mr. Wilder, and did so. In consequence, the order of Nov. 25 was rescinded, but not the order of Sept. 26. Railroad men will await the outcome of this with interest."

A dispatch from Buffalo, Nov. 28, says: "By a recent decision of the Court of Appeals, Lawrence C. Woodruff, of this city, was awarded judgment of \$220,000 against the Erie Railroad. In June, 1871, the Erie & Genesee Valley Railroad Co. resolved to raise \$120,000 to complete the road from Dansville to Burns, and issued bonds to that amount,

Woodruff agreeing to pay the interest upon the bonds, in consideration of a lease of the road for a long term of years. He in turn leased the road to the Erie Railroad for the full unexpired term of the charter, on its agreeing to pay the interest on the bonds. Subsequently the Erie was placed in the hands of Receiver Jewett. He refused to pay the bonds and Woodruff brought suit. The defense was that the lease was *ultra vires*. The case finally went to the Court of Appeals with the above result."

New York & New England.—A meeting of stockholders was held Dec. 4, at which it was agreed to present the following ticket at the annual meeting next week: Wm. T. Hart, Eustace C. Fitz, Jonas H. French, W. T. Sayles, Jesse Metcalf, F. J. Kingsbury, George M. Landers, Russell Sage, Cyrus W. Field, Hugh J. Jewett, George B. Roberts, Jay Gould, Charles G. Franklyn, George G. Haven, C. P. Clark, Thomas Nickerson, H. C. Robinson, F. L. Higginson and W. S. Webb. It was stated that Mr. Clark would serve as President and General Manager and Mr. Nickerson as Chairman of the Finance Committee. It was also stated that those present controlled by ownership or proxy about 80,000 shares.

New York, West Shore & Buffalo.—Officers of this company have denied the report that a lease of the road to the Grand Trunk Co. has been concluded. They admit that negotiations with that company are in progress, but do not state whether the object in view is a lease or simply a traffic agreement. The latter is most probable.

A report was also circulated in New York this week that the road was to be leased to the Pennsylvania Railroad Co. This also is denied by both companies. A satisfactory agreement for exchange of traffic is already in force, and nothing further, it is said, is contemplated.

Norfolk & Western.—This company has had under consideration for some time past the importance of building warehouses, coal piers, etc. upon the property controlled by it at Lambert's Point, Norfolk; also extending the New River Division to open up new coal mines, and the building of branch lines into the important mineral district adjacent to its line. The question of making financial provision to enable the company to undertake these important works having been referred to a special committee, a meeting of the board of directors was held in Alexandria, Va., Nov. 28, for the purpose of receiving their report.

The Committee submitted a statement in which they called attention to the fact that in the past three years the gross earnings from the traffic of the line had increased over 40 per cent. largely because of the policy adopted by the company in building up its local industries, and stated that, although more than \$2,000,000 had been expended during that period for betterments and improvements upon its line, in addition to the amount provided from the sale of its mortgage bonds, the traffic has so largely increased that the present facilities are insufficient.

The Committee further reported that, taking into consideration the valuable results that have been secured by former extensions, they considered it important that a comprehensive policy should be adopted, by which financial provision should be made for the immediate requirements, and such further extensions and improvements, as may from time to time be requisite.

In order to secure the necessary means, the Committee recommended that the company issue \$2,500,000 improvement and extension bonds secured by a mortgage upon the property, and submitted a proposition to the company from a syndicate of bankers, headed by Messrs. Drexel & Co., and E. W. Clark & Co., of Philadelphia, for the purchase of the bonds on terms which they recommended should be accepted. The board unanimously concurred in the report and recommendations of the Committee, the sale of the bonds was confirmed, and the President was authorized to undertake the work of construction and improvement.

By this action the Norfolk & Western Co. will, it is believed, be enabled to make very important additions in its earning capacity.

The new mortgage will be for \$5,000,000, but not more than the \$2,500,000 above referred to will be issued at the present time; and no further issue will be made except for the purposes of extensions and improvements, and only when so authorized by the vote of the stockholders, the present issue of \$2,500,000 supplying adequate means to prosecute to completion all the improvements that are at present contemplated.

The present funded debt of the Norfolk & Western Railroad Company is \$25,400 per mile, and the proposed issue of bonds, taking into consideration the increased mileage due to the proposed extensions, will make the total funded debt \$27,350 per mile. The net earnings of the road for the 10 months of this year, to Oct. 31, have been \$2,480 per mile worked.

Notice is given that the consolidated mortgage first and second preferred South Side Railroad 8 per cent. bonds, which mature Jan. 1, 1894, will be paid on that date on presentation to the Planters' & Mechanics' Bank in Petersburg, Va., or the Fidelity Insurance, Trust and Safe Deposit Co. in Philadelphia. Interest on the bonds will cease from that date.

Philadelphia & Reading.—This company's statement for October and the eleven months of its fiscal year from Dec. 1 to Oct. 31, gives the following figures, the earnings and expenses of the Railroad Co. including those of the leased Central Railroad of New Jersey, from the date of the lease, June 1, 1883:

Railroad Co.	October.	Eleven months.
1883.	1882.	1883.
Earnings.....	\$3,531,496	\$2,229,513
Expenses.....	1,630,477	1,105,981
Net earnings.....	\$1,900,959	\$1,123,532
Coal & Iron Co.		
Earnings.....	\$1,873,592	\$1,592,217
Expenses.....	1,723,290	1,444,268
Net earnings.....	\$150,302	\$147,949
Both Cos.		
Earnings.....	\$5,405,028	\$3,821,730
Expenses.....	3,353,767	2,550,229
Net Earnings.....	\$2,051,261	\$1,271,501

In these statements no charge for interest or rentals is included in expenses, the net earnings being the amount from which all the fixed charges of the company are to be paid.

For the eleven months the Railroad Co. shows an increase of \$6,509,647, or 33.2 per cent., in gross earnings; an increase of \$2,790,149, or 25.6 per cent., in expenses, and a gain in net earnings of \$3,719,498, or 42.5 per cent. The net earnings of the Central for the five months of the lease have been \$2,867,201, so that the net gain on the Reading lines proper this year has been \$852,897, or 9.7 per cent.

For the eleven months the Coal & Iron Co. had an increase in gross receipts of \$1,580,021, or 11.1 per cent., with an increase in expenses of \$1,598,506, or 14.8 per cent., and a loss in net earnings of \$368,486, or 41.1 per cent. The net earnings this year were only 3.46 per cent. of the gross receipts.

The two companies together thus had, for the eleven months, an increase of \$8,039,668, or 24.1 per cent., in gross earnings; an increase of \$4,688,655, or 19.8 per cent., in expenses, and a gain in net earnings of \$3,351,013, or 34.7 per cent. Of this gain \$2,867,201, as stated above, came from the Central road; deducting this we have the net gain for the two Reading companies \$483,812 or 5.0 per cent.

The earnings of the Reading and Central lines are given separately as follows for the month of October:

	Reading.	Central.	Total.
Gross earnings.....	\$2,381,188	\$1,150,248	\$3,531,436
Expenses.....	1,085,694	544,783	1,630,477
Net earnings.....	\$1,295,494	\$605,465	\$1,900,959
Central rental for the month.....		534,322	\$34,322

Surplus..... \$71,143 \$1,366,637

The Central surplus over rental for the five months since the lease has been \$509,075. This includes the best period of the year for traffic on that road, and includes only two months—September and October—in which dividends are included in the rental.

The sources of the income of the Railroad Co. in October were as follows:

	Earnings.	Expenses.	Net or Deficit.
Railroad traffic.....	\$3,344,351	\$1,536,644	Net \$1,807,707
Canal traffic.....	139,756	59,743	Net 79,833
Steam colliers.....	41,222	25,289	Net 15,933
Richmond coal barges.....	6,287	8,801	Def. 2,514

Total..... \$3,531,436 \$1,630,477 Net \$1,900,959

The net gain for the month was from the railroad and canal traffic, the steam colliers showing a considerable decrease in net earnings.

The traffic reported is as follows:

	October.	Eleven months.
1883.	1882.	1883.
Passengers carried.....	2,061,129	1,207,653
Tons merchandise.....	896,220	637,969
Tons coal.....	1,420,277	886,302
Tons coal on colliers.....	47,909	50,069

Tons coal mined:

By Coal & Iron Co.....	537,841	441,814	4,069,534	3,652,035
By tenants.....	148,363	152,783	1,356,456	1,372,415

Total..... 684,204 594,597 5,425,990 5,024,450

In October, 1883, the Central lines carried 833,861 passengers, 290,853 tons merchandise and 516,905 tons coal. Deducting these from the totals above, the result shows for the Reading lines alone an increase in passengers of 19,615, or 1.5 per cent.; in merchandise carried a decrease of 32,596 tons, or 5.1 per cent., and in coal carried an increase of 17,170 tons, or 1.9 per cent.

Assuming that the coal mined from the lands of the Coal & Iron Co. was all carried over the railroad—as very nearly all of it probably was—then the Coal & Iron Co. furnished the Railroad Co. with 53.5 per cent. of its total coal tonnage for the eleven months.

St. Joseph & Western.—At Topeka, Kan., November 27, a motion for the appointment of a receiver for the St. Joseph & Western Railway, on a petition of the bondholders, was argued in the United States Circuit Court. The defendant and the Union Pacific, which controls the greater part of the bonds and stock, and operates the road, asked for a decree of foreclosure and an order of sale, but resisted the appointment of a receiver, while the complainants ask that a receiver be appointed. Judge McCreary delivered a decision on the 29th granting the petition of the plaintiffs by ordering the appointment of a receiver. The road has been operated by the Union Pacific, but no interest has been paid on the bonds, as the earnings have been barely sufficient to pay the working expenses.

Texas & St. Louis.—A number of first-mortgage bondholders of this railroad company met in New York to protest against the proposed readjustment scheme. About \$289,000, or 15 per cent. of the total issue, was represented. One gentleman said that bondholders representing nearly \$600,000 were opposed to the scheme. Objection was made to accepting a mortgage of \$15,000 a mile on this narrow-gauge road and giving up a mortgage of only \$8,000 a mile on the same road. A committee of three was appointed to wait upon the Readjustment Committee, explain the views of the minority, and call another meeting.

Traffic on the road was delayed for several days last week by a strike of the engineers, who refused to take out any more trains until they received the back pay due them. The matter was finally settled by payment of two months' wages.

Toledo, Cincinnati & St. Louis.—The United States Circuit Court in Chicago has finally decided to appoint Mr. W. J. Craig, who was made receiver in Ohio, Receiver under its jurisdiction also, in Indiana and Illinois. Mr. Craig last week filed the necessary bonds, and is now in possession of the whole road.

The Railroad Equipment Co. has begun suit to recover the amounts due on certain equipment sold under a car trust to the Cincinnati Northern prior to its consolidation with this company, and also to recover possession of the property.

Union Pacific.—Track on this company's Oregon Short Line is laid to St. Paul, Idaho, on Snake River, 30 miles north by west from the late terminus at Caldwell and 493 miles from the main line at Granger. Work is in progress on the bridges at the two crossings of Snake River, and tracklaying is progressing steadily.

Vicksburg, Shreveport & Pacific.—Track on this road is now laid to Choudrant's, La., 26 miles westward from the old terminus at Monroe, and 99 miles from the Mississippi. Work is advancing steadily toward Shreveport.

West Jersey.—This company makes the following statement for October and the ten months ending Oct. 31:

	October.	Ten months.
1883.	1882.	1883.
Earnings.....	\$39,231	\$39,194
Expenses.....	61,017	55,168
Net earnings.....	\$27,214	\$28,036
P. c. of expenses.....	60.2	60.3

For the ten months this shows an increase of \$103,062, or 10.6 per cent., in gross earnings, with an increase of \$109,847, or 20.3 per cent., in expenses; the result being a decrease in net earnings of \$6,285, or 1.5 per cent.

Wisconsin, Iowa & Nebraska.—The track is now all laid on the section of this road from Des Moines, Ia., to Marshalltown, 45 miles. The use of the Wabash track into Des Moines has been secured for the present. The company's line now extends from Des Moines through Marshalltown to Hudson, and will soon be completed to Cedar Falls.

Worcester, Nashua & Rochester.—The organization of this company was completed at a meeting held in Worcester, Mass., Dec. 1. It is formed by the consolidation of the Worcester & Nashua and the Nashua & Rochester companies, and is mainly a matter of form, as the Nashua & Rochester road has been leased by the Worcester & Nashua Co. ever since it was built.